Iowa State College

of Agriculture and Mechanic Arts

CATALOGUE, 1907-1908

UNIVERSITY OF ILLINOIS
LIBRARY

Class C
Book Io9saH
Volume 1907-8

My 08-15M

Vol. V BULLETIN No. 5

IOWA
STATE COLLEGE
OF
AGRICULTURE AND MECHANIC ARTS

CATALOGUE NUMBER
FEBRUARY, 1907
AMES, IOWA

Published Monthly by the Iowa State College of Agriculture and Mechanic Arts. Entered as Second-class Matter October 26, 1905, at the Post Office at Ames, Iowa, under the Act of Congress of July 16, 1904. : : : : :

Separate announcements of the Engineering, Agricultural and Veterinary Divisions as well as the College Catalogue, Compendium and Short Course announcements will be sent gratuitiously to anyone wishing them. In calling for announcements, please state the Division concerning which information is desired. Address all communications to A. B. Storms, President of Iowa State College, Ames, Iowa.

CALENDAR—1907 1908

JANUARY

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	..	..
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

JULY

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	..	..	..
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..	..	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

JANUARY

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..
..	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

Presidents office

.28

114752

Digitized by the Internet Archive
in 2013

http://archive.org/details/generalcataloga0708iowa

CALENDAR FOR 1907-1908

1907.

SECOND SEMESTER.

January 17, Thursday, 7:45 A. M.	College Work began.
February 2, Saturday, 8:00 P. M.	Joint Y. M. C. A. and Y. W. C. A. Reception.
*February 5, Tuesday, 11:30 A. M.	General Convocation of Students.
February 22, Friday, 11:30 A. M.	General Convocation of Students—Washington's Birthday.
March 1, Friday	Selection of Senior Honor Students.
March 2, Saturday, 8:00 P. M.	Freshman-Sophomore Annual.
March 27, Wednesday, 5:00 P. M.	Easter Vacation begins.
April 1, Monday, 7:00 P. M.	Easter Vacation closes.
April 5, Friday	Inter-society Declamatory Contest.
May 6, Monday	Recommendation of Candidates for Graduation.
May 15, Wednesday	Last Date for Examination of Candidates for Master's Degree.
May 25, Saturday	Last Date for Presenting Theses to Thesis Committee.
May 25, Saturday	State Field Meet.
May 30, Thursday	Memorial Day—Holiday.
May 31, Friday, 8:00 P. M.	Graduation Exercises of Literary Societies.
May 31, Friday	Civil and Mining Engineers go into Summer Camp.
June 1, Saturday, 8:00 P. M.	Semester Musical Recital.
June 2, Sunday, 10:30 A. M.	Baccalaureate Sermon.
June 2, Sunday, 8:00 P. M.	Address before the Christian Associations.
June 3, Monday, 2:00 P. M.	Cardinal Guild.
June 3, Monday, 8:00 P. M.	Junior Class Play.
June 4, Tuesday, 2:30 P. M.	Senior Class Day Exercises.
June 4, Tuesday, 8:00 P. M.	Grand Concert.
June 5, Wednesday, 7:30 A. M.	Senior Breakfast.
June 5, Wednesday	Alumni Business Meeting

June 5, Wednesday, 8:00 P. M.	Senior Promenade.
June 6, Thursday, 10:30 A. M.	Commencement Address and Presentation of Diplomas.
June 6, Thursday, 1:00 P. M.	Alumni and Faculty Banquet.
June 6, Thursday, 8:00 P. M.	President's Reception.
June 7, Friday	Summer Vacation begins.
September	Good Roads School.

FIRST SEMESTER.

August 28, Wednesday, 7:45 A. M.	Entrance Examinations.
August 29, Thursday, 7:45 A. M.	First Semester begins.
August 29-31 September 1, Thursday to Saturday	Registration and Classification Days.
September 2, Monday, 7:45 A. M.	College Work begins.
*September 3, Tuesday, 11:30 A. M.	General Convocation of Students.
September 14, Saturday 8:00 P. M.	Y. M. C. A. and Y. W. C. A. Reception.
September 27-28, Friday and Saturday	Harvest Home Festival.
October 1, Tuesday	Last Date for Presentation of Subjects for Bachelor's Degree.
October 5, Saturday, 8:00 P. M.	Junior Trot.
October 19, Saturday, 8:00 P. M.	Sophomore-Freshman Annual.
October 21, Monday	College Day—Holiday.
November 28, Thursday	Thanksgiving Day—Holiday.
December 18-19, Wednesday and Thursday	Semester Examinations.
December 19, Thursday, 5:00 P. M.	College Work closes.

1907-1908.

December 30-January 11, Monday to Saturday	Special Short Courses in Agronomy, Animal Husbandry and Dairying.

*First Tuesday of each month.

1908.

January 15, Wednesday, 7:45 A. M.	Entrance Examinations.
January 16-18, Thursday to Saturday	Registration and Classification Days.
June 4, Thursday	Second Semester closes.

BOARD OF TRUSTEES

MEMBERS OF THE BOARD.

Hon. A. B. Cummins	*Ex-Officio*	Governor of Iowa
Hon. John F. Riggs	*Ex-Officio*	Superintendent of Public Instruction.
Hon. H. M. Letts	First District	Columbus Junction
Hon. Vincent Zmunt	Second District	Iowa City
Hon. E. A. Alexander	Third District	Clarion
Hon. E. J. Orr	Fourth District	Waukon
Hon. W. R. Moninger	Fifth District	Marshalltown
Hon. W. O. McElroy	Sixth District	Newton
Hon. C. R. Brenton	Seventh District	Dallas Center
Hon. G. S. Allyn	Eighth District	Mt. Ayr
Hon. James H. Wilson	Ninth District	Adair
Hon. J. B. Hungerford	Tenth District	Carroll
Hon. W. J. Dixon	Eleventh District	Sac City

OFFICERS OF THE BOARD.

Hon. J. B. Hungerford	Carroll	Chairman
E. W. Stanton	Ames	Secretary
Herman Knapp	Ames	Treasurer
W. A. Helsell	Odebolt	Financial Secretary
Ben Edwards	Ames	Custodian

COMMITTEES OF THE BOARD.

Faculty and Courses of Study: Trustee McElroy, Supt. Riggs, Trustees Hungerford, Dixon, Letts, Zmunt.

Finance: Trustees Allyn, McElroy, Hungerford, Alexander, Dixon and Gov. Cummins.

Building: Trustees Dixon, Hungerford and Letts.
Additional Members: Trustees Wilson and Brenton.

Rules: Trustees Orr, Zmunt and McElroy.

Bonds and Contracts: Trustees Moninger and Wilson.

Endowments: Trustees Moninger, Allyn and Gov. Cummins.

Purchasing Committee: E. W. Stanton, Herman Knapp, Trustee Moninger, W. H. Meeker, Trustees Orr, McElroy and Wilson.

Agriculture: Trustees Letts, Brenton, Moninger, Allyn, Orr, Dixon and Gov. Cummins.

Engineering Departments: Trustees Zmunt, Supt. Riggs, Trustees Orr, McElroy and Alexander.

Scientific Departments: Trustee Alexander, Supt. Riggs, Trustees Allyn, Orr and Brenton.

Literary Departments and Library: Trustees Wilson, Zmunt, Supt. Riggs, Trustees Brenton and Alexander.

Public Grounds and Assignment of Rooms: Trustees Hungerford, Zmunt and Letts.

College Hospital and Sanitary Arrangements: Supt. Riggs, Zmunt and Wilson.

OFFICERS OF ADMINISTRATION

GENERAL OFFICERS.

ALBERT BOYNTON STORMS, LL. D.,
President. Room 104, Central Building.

EDGAR WILLIAM STANTON, LL. D.,
Secretary of Board of Trustees. Room 117, Central Building.

HERMAN KNAPP, B. S. A.,
Treasurer and Registrar. Room 122, Central Building.

WILBERT EUGENE HARRIMAN, M. D.,
College Physician and Sanitary Officer. Hospital Building.

ORANGE HOWARD CESSNA, D. D.,
Chaplain. Room 212, Central Building.

MISS VINA ELETHE CLARK,
Librarian. Morrill Hall.

BEN EDWARDS,
Custodian. Office Building.

DEANS AND VICE DEANS.

ALBERT BOYNTON STORMS, LL. D.,
Dean of the Division of Science. Room 104, Central Building.

EDGAR WILLIAM STANTON, LL. D.,
Dean of the Junior College. Room 114, Central Building.

CHARLES FRANKLIN CURTISS, M. S. A.,
Dean of the Division of Agriculture. First Floor, Agricultural Hall.

ANSON MARSTON, C. E.,
Dean of the Division of Engineering. Room 315, Engineering Hall.

JOHN H. McNEIL, V. M. D.,
Dean of the Division of Veterinary Medicine, Second Floor.
Agricultural Hall.

GEORGE WELTON BISSELL, M. E.,
Vice Dean of the Division of Engineering, Room 202, Engineering Hall.

SPENCER A. BEACH, B. S. A., M. S.,
Vice Dean of the Division of Agriculture, First Floor, Agricultural Hall.

AGRICULTURAL EXPERIMENT STATION.

CHARLES FRANKLIN CURTISS, M. S. A.,
Director. First Floor, Agricultural Hall.

WILLARD JOHN KENNEDY, B. S. A.,
Vice Director. First Floor, Agricultural Hall.

ENGINEERING EXPERIMENT STATION.

ANSON MARSTON, C. E.,
Director. Room 315, Engineering Hall.

THE FACULTY ORGANIZATION.

ALBERT BOYNTON STORMS, LL. D.,
President and Chairman of Sifting Committee. Room 104, Central Building.

HERMAN KNAPP, B. S. A.,
Secretary and Chairman of Committee on Catalogue and Diploma. Room 122, Central Building.

EDGAR WILLIAM STANTON, LL. D.,
Chairman of Committee on Course of Study. Room 117, Central Building.

CHARLES FRANKLIN CURTISS, M. S. A.,
Chairman of Committee on Library. First Floor, Agricultural Hall.

ALFRED ALLEN BENNETT, M. S.,
Chairman of Committees on Examinations and Standings, and on Time Table. Second Floor, Chemical Hall.

LOUIS HERMANN PAMMEL, PH. D.,
Chairman of Committee on Thesis. Room 314, Central Building.

LOUIS BEVIER SPINNEY, M. S.,
Chairman of Committee on Rules. Room 212, Engineering Hall.

SAMUEL WALKER BEYER, PH. D.,
Chairman of Committee on College Athletics. Room 303, Engineering Hall.

HENRY ELIJAH SUMMERS, B. S.,
Chairman of Committee on Post Graduate Study. First Floor, Morrill Hall.

ARTHUR THOMAS ERWIN, M. S. A.,
Chairman of Committee on Grounds. First Floor, Agricultural Hall.

MRS. MARIAN H. KILBOURNE, B. L.,
Chairman of Committee on Social Arrangements. Margaret Hall.

RICHARD CORNELIUS BARRETT, M. A.,
Chairman of Committee on Entrance Requirements. Room 101, Central Building.

ADRIAN M. NEWENS, B. O.,
Chairman of Committee on Literary Societies. Room 311½ Central Building.

OFFICERS OF INSTRUCTION

THE FACULTY.

ALBERT BOYNTON STORMS, A. M., D. D., LL. D.,
President, Dean of the Division of Science, 1903.*

EDGAR WILLIAM STANTON, M. S., LL. D.,
Dean of the Junior College, Professor of Mathematics, 1877, 1874.

CHARLES FRANKLIN CURTISS, M. S. A.,
Dean of the Division of Agriculture, Director of Experiment Station. 1897, 1891.

ANSON MARSTON, C. E.,
Dean of the Division of Engineering, Professor of Civil Engineering, 1892.

JOHN H. McNEIL, V. M. D.,
Dean of the Division of Veterinary Medicine, Professor of Veterinary Medicine and Surgery, 1903, 1900.

M. STALKER, M. S., V. S.,
Lecturer Veterinary Division, 1900, 1874.

HON. JAMES WILSON, M. S. A.,
Lecturer in Agriculture, 1902, 1891.

GENERAL JAMES RUSH LINCOLN,
Professor of Military Science, 1884.

ALFRED ALLEN BENNETT, M. S.,
Professor of Chemistry, 1885.

LOUIS HERMANN PAMMEL, B. Ag., M. S. Ph. D.,
Professor of Botany and General Bacteriology, 1889.

GEORGE WELTON BISSELL, M. E.
Vice Dean of the Division of Engineering, Professor of Mechanical Engineering, 1892.

---

*First date after the title indicates the date of appointment to present position, the second date, when the first fails to do so, indicates the date of first appointment in the college.

MISS LIZZIE MAY ALLIS, A. M.,
Professor of Modern Languages, 1896.

LOUIS BEVIER SPINNEY, B. M. E., M. S.,
Professor of Physics and Electrical Engineering, 1897, 1893.

SAMUEL WALKER BEYER, B. S., PH. D.,
Professor of Geology and Mining Engineering, 1898, 1891.

ALVIN BUELL NOBLE, B. PH.,
Professor of Rhetoric and Literature, 1898.

HENRY ELIJAH SUMMERS, B. S.,
Professor of Zoology, 1898.

GEORGE L. McKAY,
Professor of Dairying, 1900, 1894.

ORANGE HOWARD CESSNA, A. M., D. D.
Professor of History and Psychology, 1900.

WILLARD JOHN KENNEDY, B. S. A.,
Professor of Animal Husbandry, 1901.

ADRIAN M. NEWENS, B. O.,
Professor of Public Speaking, 1902, 1896.

WILLIAM HENRY STEVENSON, A. B., B. S. A.,
Professor of Soils, 1903. 1902.

MISS GEORGETTA WITTER, B. L.,
Professor of Domestic Economy, 1904.

RICHARD CORNELIUS BARRETT, A. M. LL. B.,
Professor of Civics 1904.

SPENCER A. BEACH, B. S. A., M. S.,
Vice Dean of the Division of Agriculture, Professor of Horticulture, 1905.

BENJAMIN H. HIBBARD, B. AG., PH. D.,
Professor of Economic Science, 1906. 1902.

WARREN H. MEEKER, M. E.,
Associate Professor of Mechanical Engineering, 1900, 1891.

MISS MARIA M. ROBERTS, B. L.,
Associate Professor of Mathematics, 1904, 1891.

ARTHUR THOMAS ERWIN, B. S., M. S. A.,
Associate Professor of Horticulture, 1904, 1900.

WALTER A. STUHR, D. V. M.,
Associate Professor of Histology, Pathology and Therapeutics, 1904, 1902.

LEWIS EUGENE ASHBAUGH, B. S., PH. B.,
Associate Professor of Civil Engineering, 1904, 1903.

MISS LOLA ANN PLACEWAY, B. S.,
Associate Professor of Chemistry, 1905, 1896.

FREDERICK ALAN FISH, M. E. in E. E.,
Associate Professor of Electrical Engineering, 1905.

FRANK FRENCH, B. C. E., C. E.,
Associate Professor of Civil Engineering, 1906, 1903.

J. BROWNLEE DAVIDSON, B. S., M. E.,
Associate Professor of Agricultural Engineering, 1906, 1905.

M. L. BOWMAN, B. S. A.,
Associate Professor of Farm Crops, 1906, 1905.

HUGH POTTER BAKER, B. S., M. F.,
Associate Professor of Forestry, 1906, 1904.

FRANK WILLIAM BOUSKA, M. S. A.,
Associate Professor of Dairying, Dairy Bacteriologist, 1906, 1897.

MISS VINA ELETHE CLARK,
Librarian, 1897.

MRS. MARIAN H. KILBOURNE, B. L.,
Dean of Women and Instructor in History of Art, 1900.

JOHN PIPER WATSON,
Physical Director, 1904.

HERMAN KNAPP, B. S. A.,
Registrar, 1887, 1883.

ASSISTANT PROFESSORS.

FRANK JORDAN RESLER, B. PH.,
Director of Music, Vocalist, 1896.

MISS BESSIE B. LARRABEE, A. B.,
Assistant Professor of English, 1903, 1898.

*MISS ELIZABETH MACLEAN, M. D.,
Assistant Professor of English, 1903, 1899.

IRA ABRAHAM WILLIAMS, M. S., A. M.,
Assistant Professor of Geology and Mining Engineering, 1904, 1898.

---

*Leave of absence for spring of 1907.

WILBUR M. WILSON, M. M. E.,
Assistant Professor of Mechanical Engineering, 1904, 1901.

JOSEPH EDWARD GUTHRIE, M. S.,
Assistant Professor of Zoology, 1904, 1902.

WINFRED F. COOVER, A. M.,
Assistant Professor of Chemistry, 1904.

LESLIE M. HURT, D. V. M.,
Assistant Professor of Physiology and Sanitary Science, 1904.

IRA OBED SCHAUB, B. S.,
Assistant Professor of Soils, 1904.

MARK PERKINS CLEGHORN, B. S. in E. E.
Assistant Professor of Mechanical Engineering, 1905, 1902.

WAYNE DINSMORE, B. S. A.,
Assistant Professor of Animal Husbandry, 1905, 1903.

THOMAS HARRIS MACDONALD, B. C. E.,
Assistant Professor of Civil Engineering in Charge of Good Road Investigations, 1905 1904.

ADOLPH SHANE, B. S. in E. E.,
Assistant Professor of Electrical Engineering, 1904.

R. R. DYKSTRA, D. V. M.,
Assistant Professor of Anatomy and Obstetrics, 1905.

ERNEST ALANSON PATTENGILL, B. S.,
Assistant Professor of Mathematics, 1906, 1900.

MISS JULIA COLPITTS, A. M.,
Assistant Professor of Mathematics, 1906, 1900.

FRANK GILBERT ALLEN, B. S. in M. E.,
Assistant Professor of Mechanical Engineering, 1906, 1904.

ROBERT EARLE BUCHANAN, M. S.,
Assistant Professor of General Bacteriology, 1906, 1904.

HUGH G. VAN PELT, B. S. A.,
Assistant Professor of Animal Husbandry and Superintendent of Dairy Farm, 1906.

J. A. McLEAN, B. A., B. S. A.,
Assistant Professor of Animal Husbandry, 1906.

LOUIS BERNARD SCHMIDT, A. M.,
Assistant Professor of History, 1906.

LAURENCE C. HODSON, B. C. E., E. M.,
Assistant Professor of Mining Engineering, 1906.

FRED RASMUSSEN, B. S. A.,
Assistant Professor of Dairying, 1906.

MISS RUTH MORRISON, A. M.,
Assistant Professor of Domestic Economy, 1907, 1903.

MISS HELEN DONOVAN,
Assistant Professor of Domestic Economy, 1907, 1906.

INSTRUCTORS.

MRS. MARY ELIZABETH RESLER, B. PH.,
Instructor in Instrumental Music, 1896.

EZRA CORNELIUS POTTER,
Instructor in Pattern Shop, 1898.

MISS ANNIE FLEMING, B. S.,
Instructor in Mathematics, 1900.

MISS GRACE ISABEL NORTON, B. A.,
Instructor in German, 1901.

WARD MURRAY JONES, B. C. E.,
Instructor in Mathematics, 1902.

JESSE GREENLEAF HUMMEL, B. M. E.,
Instructor in Machine Shop, 1903.

MISS FLORENCE LUCAS,
Instructor in French, 1903.

MISS LISLE McCOLLOM, B. A.,
Instructor in German, 1904.

MISS ELIZABETH MOORE, PH. M.,
Instructor in English, 1904.

MISS SYBIL LENTNER, B. S.,
Instructor in Public Speaking, 1904.

MISS WINIFRED TILDEN, B. A.,
Instructor in Physical Culture, 1904.

MISS DORA GILBERT TOMPKINS, A. M.,
Instructor in English, 1905.

MISS ESTELLE DENNIS FOGEL, B. A., B. S.,
Instructor in Botany, 1906, 1904.

EDWARD MERRITT SPANGLER,
Instructor in Pattern Shop, 1905, 1904.

C. E. BARTHOLOMEW, M. S.,
Instructor in Entomology, 1905, 1904.

MISS ETHYL CESSNA, B. S.,
Instructor in History, 1905, 1904.

MISS ELIZABETH CRONIN, M. S.,
Instructor in Mathematics, 1905.

MISS KEO ANDERSON, B. S.,
Instructor in Mathematics, 1905.

JOHN BERG, L. B., PH. M., B. S., C. E.,
Instructor in Civil Engineering, 1905.

M. J. REINHART, B. C. E.,
Instructor in Civil Engineering, 1905.

A. H. HOFFMAN, B. S. in E. E.,
Instructor in Physics, 1905.

W. B. ANDERSON, M. S.,
Instructor in Physics, 1905.

E. B. WATSON, B. S. A.,
Instructor in Soils, 1905.

VICTOR RAY GARDNER, B. S.,
Instructor in Horticulture, 1905.

MISS JULIA RAMSEY VAULX, A. M.,
Instructor in English, 1906.

MISS MARGARET STANTON, B. S.,
Instructor in History, 1906, 1904.

MISS LOLA STEPHENS, B. S.,
Instructor in Chemistry, 1906, 1905.

MISS JEANNETTE BARTHOLOMEW, B. S.,
Instructor in Chemistry, 1906, 1905.

ARTHUR EUGENE MILLER, B. S., M. E.,
Instructor in Agricultural Engineering, 1906.

C. E. ELLIS, M. S. A.,
Instructor in Chemistry, 1906, 1903.

H. C. PIERCE,
Instructor in Animal Husbandry in Charge of Poultry, 1906.

HENRY HOWARD URMSTON, B. M. E.,
Instructor in Mechanical Drawing, 1906.

A. C. GAUGH, B. M. E.,
Instructor in Forge and Foundry, 1906.

ROY HIRAM PORTER, B. M. E.,
Instructor in Mechanical Engineering Laborarory, 1906.

L. E. CARTER, B. S. A.,
Instructor in Agricultural Journalism, 1906.

G. E. MARSH, B. S.,
Instructor in Physics and Electrical Engineering, 1906.

MISS CLARA BAKER, B. PH.,
Instructor in English, 1906.

MARTIN G. LEWIS, B. M. E.,
Instructor in Mechanical Drawing, 1906.

JOHN BOWER, B. S. A.,
Instructor in Dairying, 1906.

C. W. CLEMENTS, B. M. E.,
Instructor in Forge and Foundry, 1906.

MISS LOUISE PETERS, A. M.,
Instructor in German and Spanish, 1907.

W. R. RAYMOND, B. A.,
Instructor in English, 1907.

ELLEN M. GEYER, PH. B., B. DI.,
Instructor in English, 1907.

INGEBORG LOMMEN, A. B.,
Instructor in German, 1907.

E. P. HUMBERT,
Instructor in Farm Crops, 1907, 1906.

JOHN L. COULTER, A. M.,
Instructor in Economic Science, 1907.

RESIDENT LECTURERS.

GEORGE JUDISCH,
Lecturer on Pharmacy, 1901.

I. J. SCOTT, B. S.,
Lecturer on Veterinary Jurisprudence, 1906.

ASSISTANTS.

MISS HARRIETTE KELLOGG, A. M.,
Curator of the Herbarium, 1903.

MISS CAROLYN GABRIELSEN, B. S.
Assistant Librarian, 1905.

JULIUS ERDMANN,
Gardener, 1904.

GEORGE MITCHELL,
Farm Foreman, 1906.

M. I. EVINGER, B. C. E.,
Assistant in Civil Engineering, 1906.

R. L. GRIBBEN, B. S. A.,
Assistant in Animal Husbandry, 1906.

JOHN T. HOOVER,
Assistant in Agricultural Engineering.

HARRY NESS, B. S.,
Assistant in Zoology, 1906.

LAURA TAGGART, B. S.,
Laboratory Assistant in Chemistry, 1906.

MELISSA FLYNN, B. S.,
Laboratory Assistant in Chemistry, 1906.

A. E. BOBST,
Laboratory Assistant in Chemistry, 1906.

MARGARET FORGEUS, A. B.,
Library Cataloguer.

STUDENT ASSISTANTS.

WINFIELD S. DUDGEON,
Student Assistant in Botany, 1905.

PETER VAN GILST,
Student Assistant in Drawing, 1905.

W. L. FULTON,
Student Assistant in Drawing, 1905.

A. E. BERGGREN,
Student Assistant in Machine Shops, 1905.

F. L. TUNIS,
Student Assistant in Machine Shops, 1906.

H. A. McCUNE,
Student Assistant in Physics, 1906.

MABEL CAMPBELL, B. S.,
Student Assistant in Domestic Economy, 1906.

GERTRUDE HERR,
Student Assistant in English, 1906.

GOTTLEIB BADER,
Student Assistant in Bacteriology, 1906.

SHIRLEY ALLEN,
Student Assistant in Library, 1906.

ADA HAYDEN,
Student Assistant in Ecological Laboratory, 1906.

ALLEN C. STELLE,
Student Assistant in Library, 1907.

NON-RESIDENT LECTURERS.

WALLACE R. LANE, LL. D.,
Des Moines, Iowa.
"Patent Law."

W. W. CURTISS,
Member of American Society Civil Engineers, Chicago, Ill.
"Tie and Timber Preservation."

HON. LAFAYETTE YOUNG,
Des Moines, Iowa.
"The Panama Canal."

JOHN GOSLING,
Meat Demonstrations.

AGRICULTURAL EXPERIMENT STATION STAFF

ALBERT BOYNTON STORMS, A. M. D. D., LL. D.,
President Ex-Officio.

CHARLES FRANKLIN CURTISS, M. S. A.,
Director.

WILLARD JOHN KENNEDY, B. S. A.,
Vice Director and Animal Husbandry.

JOHN H. McNEIL, V. M. D.,
Veterinarian.

LOUIS HERMANN PAMMEL, B. Ag., M. S., PH. D.,
Botanist.

HENRY ELIJAH SUMMERS, B. S.,
Entomologist.

GEORGE LEWIS McKAY,
Dairying.

WILLIAM HENRY STEVENSON, A. B., B. S. A.,
Soils.

LOUIS G. MICHAEL, B. S.,
Chemist.

SPENCER A. BEACH, B. S. A., M. S.,
Horticulturist.

ARTHUR T. ERWIN, B. S., M. S. A.,
Assistant Horticulturist.

J. BROWNLEE DAVIDSON, B. S., M. E.,
Agricultural Engineering.

M. L. BOWMAN, B. S. A.,
Farm Crops.

HUGH POTTER BAKER, B. S. M. F.,
Forester.

FRANK WILLIAM BOUSKA, M. S. A.,
Dairy Bacteriologist.

EDWIN ELIAS LITTLE, M. S. A.,
Assistant Horticulturist.

IRA OBED SCHAUB, B. S.,
Assistant in Soils.

HUGH G. VAN PELT, B. S. A.,
Assistant in Animal Husbandry.

J. A. McLEAN, B. A., B. S. A.,
Assistant in Animal Husbandry.

FRED RASMUSSEN, B. S. A.,
Assistant in Dairying.

E. S. GARDNER,
Photographer.

MISS CHARLOTTE KING,
Assistant in Botany.

MISS HARRIETTE KELLOGG, A. M.,
Assistant in Botany.

E. T. ROBBINS, B. S. A.,
Assistant in Animal Husbandry.

MATT L. KING, B. M. E.,
Experimentalist in Agricultural Engineering.

H. C. PIERCE,
Assistant in Animal Husbandry in Charge of Poultry.

L. C. BURNETT, M. S. A.,
Assistant in Farm Crops.

L. E. CARTER, B. S. A.,
Bulletin Editor.

HARRY O. BUCKMAN, B. S. A.,
Assistant Chemist.

JOHN H. CRISWELL, B. S.,
Assistant in Farm Crops.

ENGINEERING EXPERIMENT STATION

STATION COUNCIL.

(Appointed by the Board of Trustees).

ALBERT BOYNTON STORMS, A., M. D. D., LL. D.,
President.

ANSON MARSTON, C. E.,
Director.

GEORGE WELTON BISSELL, M. E.,
LOUIS BEVIER SPINNEY, B. M. E., M. S.,
SAMUEL WALKER BEYER, B. S., PH. D.,
WARREN H. MEEKER, M. E.,
Professors.

ENGINEERING EXPERIMENT STATION STAFF.

ALBERT BOYNTON STORMS, A., M. D. D., LL. D.,
President, Ex-Officio.

ANSON MARSTON, C. E.,
Director and Civil Engineer.

GEORGE WELTON BISSELL, M. E.,
Mechanical Engineer.

LOUIS BEVIER SPINNEY, B. M. E., M. S.,
Electrical Engineer.

SAMUEL WALKER BEYER, B. S., PH. D.,
Mining Engineer.

WARREN H. MEEKER, M. E.,
Mechanical Engineer.

ALFRED ALLEN BENNETT, M. S.
Chemist.

C. E. ELLIS, M. S. A.,
Assistant Chemist.

IRA ABRAHAM WILLIAMS, M. S., A. M.,
Assistant in Engineering Experiment Station.

M. J. REINHART, B. C. E.,
Assistant in Engineering Experiment Station.

M. I. EVINGER, B. C. E.,
Assistant in Engineering Experiment Station.

IOWA HIGHWAY COMMISSION

Section 1, Chapter 105 of the Laws of 1904 provides that the Iowa State College of Agriculture and Mechanic Arts shall act as a Highway Commission for the State of Iowa.

HIGHWAY COMMISSION STAFF.

ANSON MARSTON, C. E.,
CHARLES FRANKLIN CURTISS, M. S. A.,
Directors.

THOS. H. MACDONALD, B. C. E.,
Highway Engineer.

J. BROWNLEE DAVIDSON, B. S., M. E.,
Engineer of Road Machinery.

AGRICULTURAL EXTENSION

Under Management of the Board of Trustees.

ALBERT BOYNTON STORMS, A. M. D. D., LL. D.,
President, Ex-Officio.

CHARLES FRANKLIN CURTISS, M. S. A.,
Dean of Agriculture, Ex-Officio.

AGRICULTURAL EXTENSION STAFF.

PERRY GREELEY HOLDEN, M. S., B. Pd.,
Superintendent.

RALPH K. BLISS, B. S. A.,
Animal Husbandry.

ADDISON H. SNYDER, B. S.,
Soils.

MARY RAUSCH,
Household Economics.

J. CALEB GUTHRIE, B. S. A.,
Dairying.

MARTIN L. MOSHER, B. S. A.,
Farm Crops.

J. W. JONES,
Horticulture.

ORGANIZATION AND HISTORY

The laws of the State of Iowa provide for the election by the general assembly of a Board of Trustees, one member from each congressional district, whose duty it shall be to manage and control the Iowa State College, at all times supporting the best interest of the institution.

The act establishing "A State Agricultural College and Model Farm" to be connected with the entire agricultural interests of the State was passed by the Legislature of Iowa in 1858. This legislature also appointed a board of commissioners to buy a farm and erect a college building, and elected a board of trustees to select a faculty and organize a college.

In 1859 a farm of six hundred and forty acres situated near Ames was purchased for the use of the college.

In 1862 a bill was passed by Congress, entitled, "An act donating public lands to the several States and Territories, which may provide colleges for the benefit of Agriculture and the Mechanic Arts."

Section 1 of this act provides that for the support of such colleges there be granted "an amount of public land, to be apportioned to each State in quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860; provided that no mineral lands shall be selected or purchased under the provisions of this act."

Section 4 requires: "That all moneys derived from the sale of land aforesaid by the States to which lands are apportioned, and from the sale of land script, hereinbefore provided for, shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except as may be provided for in Section fifth of this act), and the interest of which shall inviolably be apportioned by each State which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislature of the State may provide, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

Section 5 says: "And be it further enacted, that the grant of land and land script hereby authorized, shall be made on the following conditions, to which, as well as the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts; first, if any portion of the fund, invested as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum not exceeding ten per centum upon the amount received by any State under the provisions of this act may be expended for the purchase of land for sites or experimental farms, wherever authorized by the respective Legislatures of said States. Second, no portion of said fund nor the interest thereon shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings."

The General Assembly of Iowa, September 11, 1862, accepted the grant upon the conditions and under the restrictions contained in the act of Congress, and by so doing entered into contract with the General Government to erect and keep in repair all buildings necessary for the use of the College. By this action of the General Assembly the College was changed from an agricultural institution into a College of Agriculture and Mechanic Arts with the broad and liberal course of study outlined in the following paragraph.

In 1882 the General Assembly passed an act defining the course of study to be pursued as follows: Section 1. That Section 1621 of the Code is hereby repealed and the following is enacted in lieu thereof: "Section 1621. There shall be adopted and taught in the State Agricultural College, a broad, liberal and practical course of study, in which the leading branches of learning shall relate to agriculture and the mechanic arts, and which shall also embrace such other branches of learning as will most practically and liberally educate the agricultural and industrial classes in the several pursuits and professions of life, including military tactics. Section 2. That all acts, and parts of acts inconsistent with this act are hereby repealed."

August 30th the following act was approved by President Harrison: "Be it enacted by the Senate and House of Representatives of the United States in Congress assembled, that there shall be and hereby is, annually appropriated, out of any moneys in the treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may hereafter be established, in accordance with an act of Congress approved July second, eighteen hundred and sixty-two, the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars, to be applied only to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic sciences, with special reference to their application in the industries of life, and to facilities for such instruction."

The income of the College from National grants is therefore expended in instruction, experimentation and illustration in agriculture and in the mechanic arts, and in underlying and related science and literature.

All buildings are erected and all repairs thereon are made by the State of Iowa, the cost down to date being about $1,150,000.

The College was formally opened on the 17th of March, 1869.

THE SCOPE.

The Iowa State College of Agriculture and Mechanic Arts seeks to aid the young men and women in the acquirement of a higher education. Instruction is given in the culture studies and sciences, together with such experimental work as to enable the students to successfully engage in a practical profession. Throughout the several courses, the study of the textbook is supplemented by lectures, discussions, library work, and the practical experimental work of the laboratory. The instruction is not merely theoretical but also practical—the student verifying and putting into practice in the laboratory the instruction received.

The Iowa State College offers thirteen four year courses leading to the following degrees:

Course in Agronomy leading to the degree of Bachelor of Scientific Agriculture (B. S. A.)

Course in Dairying, leading to the degree of Bachelor of Scientific Agriculture (B. S. A.)

Course in Animal Husbandry, leading to the degree of Bachelor of Scientific Agriculture (B. S. A.)

Course in Horticulture and Forestry, leading to the degree of Bachelor of Scientific Agriculture (B. S. A.)

Course in Science and Agriculture, leading to the degree of Bachelor of Scientific Agriculture (B. S. A.)

Course in Veterinary Medicine, leading to the degree of Doctor of Veterinary Medicine (D. V. M.)

Course in Mechanical Engineering, leading to the degree of Bachelor of Mechanical Engineering (B. M. E.)

Course in Civil Engineering, leading to the degree of Bachelor of Civil Engineering (B. C. E.)

Course in Electrical Engineering, leading to the degree of Bachelor of Science in Electrical Engineering (B. S. in E. E.)

Course in Mining Engineering, leading to the degree of Bachelor of Science in Mining Engineering (B. S. in Mn. E.)

Course in Ceramics, leading to the degree of Bachelor of Mining Engineering in Ceramics (B. E. M. in Cer.)

Course in Science as related to the Industries, leading to the degree of Bachelor of Science (B. S.)

Course in General and Domestic Science, leading to the degree of Bachelor of Science (B. S.)

Course in Domestic Science, leading to the degree of Bachelor of Domestic Science (B. D. S.)

The degree of Bachelor of Agricultural Engineering (B. A. E.) is given to students who have completed a four year course in Civil, Mechanical, or Electrical Engineering, followed by one year's prescribed work approved by the faculty, in Agricultural Engineering and related sciences, under the rules and conditions governing work in other courses.

Two year courses are also offered in Mining Engineering and Clay Working, for the completion of which, certificates will be given. That many, who are unable to take the full college course, may take advantage of the advancement being made in their chosen work, a two weeks' short course is now offered each year during the winter vacation in Stock and Grain Judging and Dairying. A School of Good Road Investigations is also held here during each summer vacation. The interest in all of these short courses is becoming greater, the attendance is increasing and the benefits to be derived from them are constantly increasing.

LOCATION.

The College occupies a delightful and healthful location upon high rolling land in the west part of Ames, Story County. Situated at the junction of the north and south branch and the main double-track line of the Chicago Northwestern Railroad and connected with all the trunk lines of Iowa, Ames is easily accessible from all parts of the state. A steam motor railway connects Ames and the College with efficient service. Ames is a most desirable town for wholesome college influences. Its people are thrifty, enterprising and cordial. The town has an excellent system of public schools, numerous churches, water works, electric lights and a good city government. It is an inviting community for families who wish to educate their children, enjoy the better elements of society and an environment of reasonable expense. Ames and the College are on very cordial terms, and its citizens seek to promote the efforts of the students and the highest interest of the College.

THE COLLEGE GROUNDS.

Of the entire College domain of 1030 acres, 125 acres are set apart for College grounds. These include the experimental plots, the young forestry plantations, the surroundings of the professors' dwellings and the central campus with its beautiful winding walks and drives, its trees, shrubbery and flower gardens, and its large and stately college buildings. The true principles of landscape gardening have been so faithfully observed in the gardening and in the location of buildings and drives as to make the entire campus a large and beautiful park.

BUILDINGS.

Twenty-three commodious buildings have been erected by the State for the exclusive use of the various departments of the College, besides the dwelling houses and buildings for farm stock, machinery and work. All of these buildings are heated by steam, lighted by electricity, and supplied with pure water.

New Central: The New Central building which has been erected on the site of the Old Main accommodates the Executive Offices, the departments of English, Civics, Modern Languages, Economic Science, History, Mathematics, Public Speaking, Botany and General Bacteriology. The building is of buff Bedford stone, built in the Roman Renaissance style, which style has been adopted for the Central Building, and the Engineering and new Agricultural Halls. The building completed and furnished cost about $375,000.00.

Engineering Hall: The Engineering Departments occupy the new Engineering Hall. This is a fire-proof building in which all the engineering departments have offices, recitation and lecture rooms, laboratories and engineering museum. It is of Bedford stone, has plate glass windows, and modern conveniences and furnishings throughout. This building, costing $220,000.00, is the best engineering building west of the Mississippi river.

Agricultural Hall: This is a four story building, the lower stories of stone and the upper of brick. It contains recitation rooms of the divisions of Agriculture and Veterinary Science, offices of the Experiment Station and sewing rooms of the Domestic Economy department.

Morrill Hall: Morrill Hall, one of the oldest of the College buildings, was named in honor of Hon. Justin S. Morrill, the originator of the "Land Grant" for Colleges of Agriculture and Mechanic Arts. It is of deep red brick with stone, brick and terra cotta trimmings. In it are the College Chapel, Library and Zoological Museum, lecture rooms and laboratories.

Margaret Hall: Margaret Hall, the home of the young women of the College, occupies one of the most pleasing locations on the campus. It is built of brick, roofed with slate, provided with steam heat, electric lights, baths and large parlor. The hall will accommodate about one hundred girls, to whom the rooms will be assigned in the order of their application. The privilege of rooming in Margaret Hall is reserved for regular students. In connection with the hall there are two clubs at which the girls may obtain board at a reasonable rate. The young women are under the direction of an efficient dean of women. The department of Domestic Economy is also located in this building.

Dairy Building: This is a three story building built of pressed brick, trimmed with Bedford stone containing factory butter and cheese rooms, bottling room, refrigerators, lunch room, offices, research laboratory, farm dairy room, students testing laboratory, lecture room, dairy reading room, and bacteriological laboratory for reseach and investigation.

Chemical Hall: A three story brick building furnished with steam heat, water, gas and laboratory equipment accommodating 600 students in Chemistry.

Station Barn: The Experiment Station barn is one of the best and most modern buildings of its kind to be found anywhere in the world. It is veneered with buff pressed brick, has a slate roof, paved brick floors and is in every respect entirely fire proof. The building is devoted to the housing of beef and dairy cattle and horses, for storage of vehicles and machinery, storage and grinding room for feed, seed rooms for the drying of corn and the storage of grain and feed stuffs used in experimental work.

Judging Pavilion: In connection with the experimental barn is a two story octagonal judging pavilion. It is built of buff pressed brick with a slate roof. The lower story is used for stock judging, and the upper for grain judging. This building, thoroughly equipped in every way, is conceded to be the best building of its kind on the continent.

Horticultural Laboratory: This is a two-story brick building connected with the greenhouse. The main floor, accommodating fifty students, is especially fitted for the study of fruits. The building is equipped with two refrigerators, one for experimental work in cold storage and the other for storing fruits for class purposes. The second floor contains the horticultural museum and facilities for photography.

Greenhouses: The present plant contains 10,000 square feet under glass. The houses are of cypress construction, supported by a steel structure. They are heated by steam, operated on the Paul system, with varying temperatures for the propagating house, growing houses, and seed testing houses. The houses also include four commodious work rooms used in potting, transplanting and other necessary work.

Agricultural Engineering Building: This is a four story, fire proof building, built of steel and pressed brick, costing when equipped about $70,000.00. It accommodates the workshops, tool rooms, blacksmith shop, carpenter shop, drafting room, reading room, rooms for the study and exhibition of various farm implements, offices and class rooms, bulletin rooms and a photographic department.

Engineering Laboratory: This is a brick four story building, including basement and large "L", containing machine shops, and the engineering laboratory for the departments of Civil and Mechanical Engineering.

Wood Shop: This is a brick building containing carpenter and pattern shops, with power and hand tools complete for wood work, and outfit of tools for individual work.

Forge Shop and Foundry: A brick building containing complete equipment for forging and moulding.

Power House: This is a brick, one story building, containing the dynamos and motor power for electrical engineering, the deep well pump, the engine and boiler furnishing power for the shops, and also accommodates the experimental work in the course in Mechanical Engineering.

Veterinary Hospital: This is a brick, three story building, containing offices and dissecting rooms, and is well equipped for conducting clinical as well as general hospital work.

Horse Barns and Stock Pavilion: The barn, built of brick with a slate roof, is for horses, the storage of grain and general farm purposes. The Stock Pavilion is also of brick, is circular in form, well heated and lighted, accommodates several hundred students at a time, and affords first class advantages for stock judging and animal husbandry.

Locomotive Laboratory: This building contains an eight-wheeled locomotive and tender presented by the Chicago & Northwestern Railway Company.

Sanitary Hall: A frame, two story building, containing offices, kitchen and dining room for the hospital patients, and rooms for the sick and convalescent.

Music Hall: This is a brick, two story building, fitted up with apparatus and instruments for practice and instruction.

Dwelling Houses: There are also on the Campus eighteen comfortable dwelling houses occupied by professors' families, and several others by foremen and employees.

Other Buildings: Stables, barns, sheep and swine and seed houses sufficient for the requirements of the farm, are conveniently grouped near the College campus.

ADMISSION TO THE COLLEGE*

Admission by Certificate.

Admission requirements to college classes in the State College of Agriculture and Mechanic Arts are substantially the same as those of all other high grade institutions, both East and West.

Graduates of accredited high schools, and other institutions of the same grade and rank, having thirty semester credits are admitted as unconditioned freshmen upon presentation of the Uniform Admission Certificate.

Superintendents and Principals are urged to send to the College immediately upon the close of the school year the Uniform Admission Certificate of each graduate intending to enter the college at the beginning of the ensuing college year. If on inspection the Certificate is found satisfactory the applicant will be forwarded a certificate entitling him to admission without examination.

Uniform Admission Certificates may be had by teachers and students upon application.

Graduates from the same class of schools mentioned above, with twenty-eight credits, may classify, upon presentation of the Uniform Admission Certificate, as conditioned freshmen, the conditions to be made up as soon as possible after entrance. All conditions may be removed, without expense, in academic classes, which are under close college supervision.

Credit by Examination.

Students from high schools and other institutions of a similar character, presenting credits in excess of the number required for admission may receive credit for the same by passing satisfactory examinations under the head of the departments concerned—the amount of credit to be determined by the head of the particular department interested.

College Credit for Work Done Elsewhere.

Graduate and under graduate students of other colleges will be admitted and granted such credits as their work will justify. Work of recognized merit that has been taken at other colleges or universities of good rank and standing will be credited for an equivalent amount of work so far as it applies in any of the courses offered in this college. Credits allowed, may, at the option of the heads of departments, be conditioned on satisfactory work during the student's first semester in college.

---

*In order to facilitate correspondence, all letters regarding admission, credits, courses of study, etc., should be mailed to "Committee on Entrance Requirements, State College, Ames, Iowa."

The following form should be used by those seeking advanced credits:

.... College

Date, ...

THIS IS TO CERTIFY, That .... of .... has

been a student in .... College, and has the following

grades on the records of this institution:

Name of Subject	Name of Text-book Used, or Lecturer	No. of Weeks Pupil Studied Subject in This Class	Grade	No. of Recitations Per Week

Remarks.

Amount and kind of Laboratory work ....

....

....

President or Recorder.

DEPARTMENTS MAINTAINED.

Agricultural Engineering,
Agricultural Chemistry,
Agronomy,
Animal Husbandry,
Botany and General Bacteriology,
Chemistry, General and Applied,
Civics,
Civil Engineering,
Dairying.
Domestic Science,
Economic Science,
Electrical Engineering,
English,
Farm Crops,
Forestry,
Geology,
History,
Horticulture,
Literature and Rhetoric,
Mathematics,
Mechanical Engineering,
Military Science,
Mining Engineering,
Music,
Modern Languages,
Physics,
Psychology and Ethics,
Public Speaking,
Science and Agriculture,
Soils,
Veterinary Science,
Zoology.

ADMISSION TO ACADEMIC COURSE.

A. General Statement.

While neither the national law, nor the statutes of the state prohibit admission to the State College of students from schools maintaining courses of study below the rank of first class high schools, the management of the institution has strenuously attempted to avoid doing the work that can and should be done in the local public schools of the state. In order to connect the college proper, however, with the small high schools, many of which have only three years of high school work, there has been provided for the benefit of graduates from these schools, and for those who have had equivalent instruction elsewhere, an academic course one and one half years in length. The course corresponds with the last year and a half given in the best high schools. Students unable to gain freshman standing are classified in this course and are promoted as rapidly as they show ability to carry advanced work. This plan was inaugurated in the early history of the college and time has demonstrated that it possesses the very greatest merit. The college, however, urges the completion of the high school course in all possible cases before entrance upon college work.

The Academic work, introductory to the various courses, covers in thorough review the more important studies, thus insuring the thorough preparation of the students before their entrance into the freshman year.

E Preliminary Work Required of Students.

Admission to the Academic course is obtained without examination by those who have been in attendance upon a high school for two and a half years, and who present the Uniform Admission Certificate with a total of twenty credits.

A "credit" means five forty or fifty minute recitations per week in a given subject during a term of eighteen weeks, adequate time being given to the preparation of each lesson.

No student may be admitted to the Academic course who does not have the following:

(a) Required Credits.

English	4 credits.
History	2 credits.
Algebra and Plane Geometry	4 credits.
Total	10 credits.

The additional ten credits for admission to the academic course may be selected from any of the following:

(b) Elective Credits.

*English	1 credit.
*Algebra or Plane Geometry	1 credit.
*Physical Geography	1 credit.
*Botany	1 credit.
*Physiology	1 credit.
*Physics	1 or 2 credits.
*German	2 or 4 credits.
or	
*French	2 or 4 credits.
or	
*Latin	2 or 4 credits.
*History	2 credits.
Bookkeeping	1 or 2 credits.
*Political Economy	1 credit.
*Civics	1 credit.
*Chemistry	1 credit.
*Manual Training	1, 2 or 3 credits.
*Mechanical Drawing	1, 2 or 3 credits.
Typewriting	1 or 2 credits.
Stenography	1 or 2 credits.

*Commercial Geography......1 credit.
*Mental Arithmetic ....1 credit
Business Arithmetic....1 or 2 credits.
*Elements of Agriculture.....1 credit.

C. Admission by Examination.

Experience has demonstrated that there are many, young men especially, who have not had the high school training required, but who have been self taught or educated elsewhere than in secondary schools. With a view to encouraging this class of young people, and, if possible securing their admission to the academic course, the college authorities have decided that they may be admitted by passing satisfactory examinations in the "required subjects" mentioned above, and in such elective "starred" subjects as the applicant may select.

Examinations will be held at the college at the opening of each semester.

In all cases applicants seeking admission to the Academic course must have twenty credits earned either in secondary schools or by examination.

ONE YEAR ACADEMIC COURSE.

This course is especially prepared for such students as may be able in one year's time to prepare for freshman classes in the college. Graduates of three year high schools, or those who have made equivalent preparation elsewhere, will find the work of this course well suited to their needs.

The aim is to give the most thorough instruction in algebra, plane and solid geometry, composition and rhetoric, English classics, history, civics, modern languages, drawing, botany and public speaking.

Students in civil engineering courses are urged to take field work with a view to preparing to secure remunerative engineering work during the summer vacations.

General Remarks.

Students from accredited schools always receive credit for work certified as completed, but credit given is always conditioned upon the maintenance of satisfactory grades in advance work assigned.

If for any reason a student is unable to carry the work in the class to which he is assigned, academic classes afford him an excellent opportunity to pursue with profit such work as he is able to carry.

The State College, believing it to be to the advantage of the student to learn at the earliest possible moment something regarding his strength or weakness, assigns him to a review of ten days, in English and Algebra.

ENTERING IN JANUARY.

Students may enter the State College in the academic course, at the opening of the second semester, in January as advantageously as in the fall. Many students find it desirable to begin their studies in College in the second semester. Those who have had no considerable algebra in the preparatory school should review its fundamental principles and become acquainted with its application in the wider and more difficult field of college work, and those who have had experience in plane geometry can, to advantage, supplement such study by a review of some standard text and a thorough drill in original geometric propositions. The classes established at the beginning of the spring semester furnish an excellent opportunity for students to prepare themselves thoroughly for entering upon collegiate work at the opening of the next college year.

SPECIAL STUDENTS.

Students taking special work in any of the college courses must be at least twenty years of age, must give good and satisfactory reason for desiring such classification and must furnish satisfactory evidence that they are thoroughly prepared to pursue the work chosen. Permission to take such special course and the subjects included therein must receive the approval of the President of the College and the Dean or Head of the Department in which the student seeks enrollment.

Special students when not qualified to enter above the Freshman year, will be required to take the first year of their work from Junior College studies.* During the second year they may be admitted to the Senor College studies in accordance with the rules governing admission to each study or course.**

Special students are subject to the same rules governing conditions on back work that apply to all other students. Students wishing to change from a regular to a special course either in the same or another department will be required to remove conditions on back work. Special students, as well as regular students, are subject to the conditions given under "Entrance."

It is the theory of special classification that students should be particularly strong and well prepared to do thorough work in the studies they elect. A high standard of scholarship will therefore, be required of all who are thus classified.

***Special Interpretation for Agricultural Students.**—An exception to this rule will be made in case of Animal Husbandry XI and XII, which may be taken the first year in lieu of Animal Husbandry II and III, which cannot be taken until the work in Animal Husbandry I and II has been completed.

**For conditions of admission to any course, see the description of the course of study.

ENTRANCE.

The office will be open for registration at 8:00 A. M. on the Thursday preceding the opening of each semester. All students are required to register as soon as possible.

Students who are required to take the entrance examinations will be examined here the first or second day of the semester. After passing the examinations, the examination card should be taken to the classifying committee who give a card of classification which admits to college and assigns to class work. The student's name is at once entered upon the official list and will be included in the roll call of the following day. Attendance is expected thereafter at every recitation of the semester.

FEES AND EXPENSES.

The entire expenses of a student need not exceed $250.00 per College year.

Tuition.—No charge for tuition is made to the students from the state of Iowa. To the non-residents, a tuition fee of $24.00 per year is charged.

Janitor Fee.—The regular janitor and incidental fee for the semester is $8.00, but all students who classify during the classification period, Thursday, Friday and Saturday before College work begins, will be charged a janitor fee of only $5.00 per semester.

Laboratory Fees.—Laboratory fees at the actual cost of breakage and usage are charged to the students, the Treasurer's receipt for such fee being required before the students are admitted to laboratories. For the amount of such fees see the department courses.

Board and Room.—About one hundred young women can secure rooms in Margaret Hall. The privilege of rooming in this building is reserved for regular students. Students rooming in this building furnish their own bedding and all furniture except bedsteads, dressers, and tables. Each girl pays $5.00 per semester for room and a sum not exceeding 55 cents per week for lighting, heating and incidentals.

All other students can secure furnished rooms and board in clubs or private families adjacent to the College grounds at from $3.50 to $4.50 per week.

Hospital Fee.—All students living in College buildings and such others as desire to, pay a Hospital fee of $2.50 per semester. (See College Hospital.)

Diploma Fee.—A diploma fee of $5.00 is payable before graduation.

Text Books.—All text books and stationery may be purchased at the College Book Store at about twenty per cent below the average retail price.

As security for the payment of bills, all students living in College buildings are required to deposit $10.00 with the Treasurer, which deposit will be returned at the final settlement at the close of the semester. All the bills for each month must be settled at the Treasurer's office by the second Saturday of the next month.

CLASSIFICATION AND STANDINGS.

The amount of work in each course is expressed in hours, an **hour** meaning one recitation or its equivalent per week throughout the semester. It is considered that one hour's recitation or lecture will require as much time in the preparation, and hence is equivalent and receives an equal credit with a three hour laboratory.

Number of Hours.—No student shall be allowed to classify in more hours than are specified in the catalogue for the semester of the course taken unless he has an exceptionally high record in his previous college work. The taking of such additional work is subject to the approval by the Dean under whom the student is classified and the Head of the Departments in which the student is classified.

In general, students failing in any portion of a term's work will not be allowed to take full classification for the next semester.

Classification.—No student shall be admitted to or dropped from any class except by authority of the Classifying officer.

Standings.—All the standings are based on the scale of 100. The passing grade is 75. A student receiving between 60 and 74 per cent inclusive in any course is conditioned and allowed to make up the condition under the direction of the head of the department. A student receiving below 60 per cent in any course is not passed in that course.

Back Studies.—Students shall be classified in back studies in all cases in which such studies are taught, subject to the first rule under Number of Hours. Any exception to this rule must be for good and sufficient reason approved by the President of the College and the Dean or Head of the Department in which the student is enrolled.

No student shall be considered a candidate for graduation who has not at the beginning of the second semester of the Senior year completed his work to within the maximum number of hours regularly allowed in his course for that semester. If the uncompleted work is not offered in the second semester it shall be passed and reported to the recorder not later than April 1st.

Conflicts.—Students shall not classify in conflicting studies without the approval of the Classifying officer and Heads of the Departments in which the student wishes to enroll.

Junior and Senior College.—The students are now classified in "Junior and Senior Colleges." The Junior College is composed of all students in the Academic, Freshman and Sophomore years: the Senior College, of all in the Junior and Senior years.

SUGGESTIVE LIST OF EXAMINATION QUESTIONS.

For Entrance by Examination Into the Freshman Year.

ALGEBRA.

1. From $5xy-(m-n)(k+1)-(a+b)(d+c)$ subtract $(d+c)(a-b)+5(k+1)-acy-mny$.

2. Remove the parentheses and simplify:

$$\begin{aligned}7x^2\left\{\frac{a+b}{c-d}-y-4-(n-m)\right\}-\left\{\frac{2(y+4)}{3}\right.\\ \left.-7x^2-\frac{a+b}{c-d}-\overline{m-8+n}\right\}+8\end{aligned}$$

State the rule by which parentheses preceded by the plus or minus sign are removed.

3. Divide $-45a^{1-x}b^{-2}c^{x}(m+n)^{5}+ab^{x}c^{1+x}(m^{2}+2mn+n^{2})^{3}$ by $3a^{7}b^{2}c^{x}(m+n)^{3}$.

4. Write the product of $(3x-2)(3x+5)$, of $(2x+2)(2x+2)$, and also of $(3y+1)(3y-1)$ and give the special rules of multiplication used.

5. Resolve $a^{12}-a^{8}b^{4}-a^{4}b^{8}+b^{12}$ into its prime factors.

6. Find the lowest common multiple of

$$2x^{4}+3x^{3}+3x-2 \text{ and } 3x^{4}+5x^{3}+x^{2}+5x-2.$$

7. Simplify

$$\frac{a^{2}-b}{(a-b)(a-1)}+\frac{b^{2}+a}{(b+1)(b-a)}+\frac{1+ab}{(1-a)(1+b)}$$

What is the effect on a fraction of changing:

(a) Any two of the three following signs: sign of numerator, sign of denominator, or apparent sign of the fraction.

(b) The signs of an odd number of factors in the numerator.

(c) The signs of an even number of factors in the numerator.

8. Solve the following equation:

$$\frac{x-\frac{3(x-5)}{4}}{8}-\frac{x-3}{4}=x+1-\frac{8x-\frac{2(x+16)}{17}}{6}$$

9. A man rowing at a certain rate makes the round trip from A up stream to B, 24 miles distant, and return, in 5 hours. Having six hours at his disposal, he starts to make the trip, but when 16 miles from A, the boat springs a leak which causes him to land. In so doing he loses 40 minutes, but by walking at three-fourths the speed the boat would have carried him, he is able to spend an hour in B, and reach home in the required time by a train moving at twice the speed which the boat would have moved down stream. What is the rate in miles per hour of the man rowing in still water and what is the rate of the current.

10. Find the values of a and b in the following:

$$\frac{3}{2a}-\frac{4b}{b-2a+3}=2\tfrac{1}{2}$$

$$\frac{1}{a}+\frac{b}{b-2a+3}=-\tfrac{1}{6}$$

11. Find the value of $(-5a^{-y}b^{k+1}c^{3})^{-3}$ freeing the result of negative exponents.

12. Find the cube root of:

$$8a^{\frac{3}{2}}-12a^{\frac{1}{2}}+42a^{-\frac{1}{2}}-37a^{-\frac{3}{2}}+63a^{-\frac{5}{2}}-27a^{-\frac{7}{2}}+27a^{-\frac{9}{2}}$$

13. Find the sum of $\sqrt[3]{54x^{a-3}y^6}$, $\sqrt[3]{16x^{a+6}y^3}$ and $\sqrt[3]{2x^{4a+9}}$

14. Multiply $\sqrt[2n]{x^3}$ by $\sqrt[n]{x}$ by $\sqrt[3n]{x^2}$

15. Find the cube root of $\frac{3}{5}\sqrt{\frac{3}{5}}$

16. Multiply $\sqrt{2}-3\sqrt{-5}$ by $\sqrt{5}+\sqrt{-3}$

17. Find the square root of the binominal surd $67+7\sqrt{72}$

18. Solve $\sqrt{x^2-6x}-5\sqrt[4]{x^2-6x}+6=0$

19. Solve $9x^2-5xy=21$ and $xy-y^2=-4$, solving for x and y.

20. Two trains starting at the same time and going in opposite directions between M and N, upon meeting, have differed in the distance covered by 20 miles. It is found that the train from M will reach N in one and one-half hours from the time of meeting and the train from N will reach M in 40 minutes. How far apart are M and N, and what is the rate of each train.

ENGLISH.

The examinations in English will include questions in grammar, in elementary rhetoric, including the writing of one or more essays, to test the student's readiness and accuracy of expression, and in English classics. The following list of questions indicates the general nature of the examination:

I. In the following sentence, (a) state the exact grammatical relationship of each phrase and clause; (b) parse the words in black; (c) account for punctuation: "**What** if their palaces were grand, and their villas **beautiful,** and **their** dresses magnificent, and their furniture costly, **if** their lives **were spent** in ignoble and enervating pleasures, **as** is **generally** admitted?"

II. In the following sentences name the part of speech and state the office of the words in black:

(a) I believe **him to be unprejudiced.**

(b) **Alice,** did you go **boating yesterday?**

(c) It cost **me** a **struggle** to **give** up the trip.

(d) They let **him stay.**

(e) "Ask **yourself** seriously **whether** you are **fit to read such** revelations **as** are **to follow.**"

III. Discuss **fully** and **carefully** four of the following topics:

(a) The topic sentence and its development.

(b) The respective advantages of the long sentence, the periodic sentence, the balanced sentence.

(c) Unity in the paragraph.
(d) Coherence in composition.
(e) Emphasis in the sentence.

IV. Write an essay of from 250 to 350 words on one of the following topics:

(a) A Reminiscence of My Childhood.
(b) Why I like—a book, an eminent man, a place.
(c) Describe a view from ———.
(d) All Students Should be Required to Take Athletics.

NOTE.—These essays are considered an important part of the examination. They will be graded mainly in diction, sentence structure and connection, and paragraphing. Good penmanship, neatness of manuscript, and correct spelling and punctuation are also important.

V. The examination on the English Classics will be based on three of four books or authors, included in the "uniform entrance requirements" in English. For 1907 they are as follows:

I. For careful study:
Burke's Speech on *Conciliation with America*; Macaulay's Essays on *Addison* and *Johnson*; Milton's *Minor Poems*; Shakespeare's *Julius Caesar*.

II. For general reading:
Addison's *Sir Roger de Coverly Papers*; Coleridge's *Ancient Mariner*; George Eliot's *Silas Marner*; Irving's *Oliver Goldsmith*; Scott's *Ivanhoe* and *Lady of the Lake*; Shakespeare's *Macbeth* and *Merchant of Venice*; Tennyson's *Idylls of the King*.

HISTORY.

EUROPEAN HISTORY.

1. Discuss (a) the significance of the Nile in the history of Egypt, and (b) the arts and industries of ancient Egypt, (c) Outline the work of a famous Egyptian king.

2. Give the date, important facts, and results of the Persian invasion of Greece in the reign of Darius.

3. The Athenian Empire: (a) trace its origin; (b) when was it at its height? (c) state the effect of the Peloponnesian war upon it.

4. Discuss the influence of the geographical features of Italy upon Roman history. Name the races of people in Italy at the dawn of the Italian history.

5. Outline the chief features of the Roman constitution in the reign of Augustus.

6. Feudalism: (a) its origin; (b) classes in feudal society; (c) feudal rights and obligations; (d) value of feudalism.

7. Give date, causes, and results of the Crusades.

8. Discuss the rise and growth of the Italian city republics.

9. Magna Charta: (a) circumstances under which it was secured; (b) chief provisions.

10. Reformation in Germany: (a) leading men; (b) principal steps in the movement.

11. Discuss fully the causes of the French revolution.

12. Something of importance concerning each of the following: Cardinal Wolsey, William the Silent, Cardinal Richelieu, Gustavus Adolphus, Charles Martel, Peter the Great, Oliver Cromwell, Lord Nelson, Bismarck.

AMERICAN HISTORY.

1. Sketch a map of the United States indicating (a) the boundaries at the close of the Revolutionary War and (b) each tract of land secured by treaty or purchase since the Revolution.

2. When and by whom was each of the following colonies first settled? New York, Virginia, Georgia, and Pennsylvania.

3. Tell something of importance concerning each of the following: Patrick Henry, William Loyd Garrison, Robert Fulton, William Penn, Robert Morris.

4. The United States Constitution: (a) By whom framed? (b) Why was such a new constitution needed? (c) When adopted? (d) What were some of most striking differences between it and the articles of confederation? (e) When and in what respects has the Constitution been amended?

5. Enumerate the most important political parties which have arisen in the United States? State circumstances of the rise of each.

6. What were the most important facts concerning Jefferson's administration?

7. War of 1812: (a) Causes; (b) Important leaders; (c) Results and significance.

8. Discuss the relation of Henry Clay to the Slavery Struggle.

9. The Southern Confederacy: (a) When established? (b) Its president? (c) Why established? (d) How long did it last? (e) What states were included in it?

10. Write an essay of not more than 300 words on the American Indian.

GOVERNMENT.

The relations of our College buildings, and the nature of the exercises, complicated as they are, by laboratory work, shop practice and labor, make order, punctuality and systematic effort indispensible. The institution, therefore, offers no inducement to the idler or the self-indulgent. All who are too independent to submit to needful authority, too reckless to accept wholesome restraint or too careless to take advantage of their opportunities, are not advised to come. The discipline of the College is confined mainly to sending away those who prove on fair trial to be of this class.

MANUAL LABOR.

The following regulations in regard to manual labor have been adopted by the Board of Trustees:

1. The manual labor of students is divided into two kinds, viz: Uninstructive labor, which shall be paid for in money, and instructive labor, which shall be compensated by the instruction given and the skill acquired.

2. Uninstructive labor shall comprise all the operations in the workshop, the garden, upon the farm and elsewhere, in which the work done accrues to the benefit of the College, and not to that of the student. Instructive labor shall embrace all those operations in the workshop, museum, laboratories, veterinary hospital, experimental kitchen, upon the farm, garden and experimental stations, in which the sole purpose is the acquisition of knowledge and skill.

3. Students shall engage in instructive labor in the presence and under the instruction of the professor in charge according to the statement made in each of the courses of study.

The compensated labor furnished by the Divisions of Agriculture, Veterinary Medicine and of Engineering, is given by each to its own students and is eagerly sought. The "details" of compensated labor supplied by the needs of the various departments are given to the most faithful and meritorious students in each department. Uninstructive labor is paid for according to its value to the College, but no student should expect to pay the main part of his expenses by labor while here. The College cannot furnish the work, and even if it could, the student's time is chiefly needed for study. Still, many worthy and industrious students pay a considerable part of their expenses by labor, over $4,000 being paid out by the College thus each year to students and post-graduate assistants.

GRADUATING THESIS.

All candidates for graduation in the Engineering and Agricultural courses are expected to present a satisfactory thesis.

The subjects for theses shall be selected under the direction of the professor in whose department they are written, and submitted to the Thesis Committee, with signed approval of the professor, on or before the first Monday in October.

It is expected that each thesis shall represent an amount of work equivalent to at least one exercise per week through the Senior year; that it shall show the result of the student's personal study or investigation and be throughout original in matter and treatment so far as the nature of the subject will permit; that it shall be prepared under the supervision of the professor in charge, the student making frequent reports of progress and having an outline of matter ready for approval by the first week of the last semester.

The complete thesis shall be submitted to the Thesis Committee on or before May 25th.

POST GRADUATE COURSES.

The faculty of this College offers the degree of Master of Scientific Agriculture (M. S. A.) to Bachelors of Scientific Agriculture who are graduates of this College or others offering equivalent courses of study, the degree of Master of Science (M. S.) to Bachelors of Science who are graduates of this College or other colleges offering equivalent courses of study, the degree of Master of Agricultural Engineering (M. A. E.) to Bachelors of Agricultural Engineering who are graduates of this College or other colleges offering equivalent courses of study, and also Professional degrees in Engineering.

MASTER'S DEGREE.

The opportunity for resident study after graduation is a privilege granted only upon the recommendation of the President with the advice and consent of the Committee on Post-Graduate Study and the professors in charge of the departments in which the studies are to be pursued.

Between the baccalaureate degree and the master's degree there shall intervene not less than two years, of which the candidate shall devote not less than one year (the second preferred) to resident study at this College.

Two lines of work shall be selected, designated as major and minor studies, the former to be given two-thirds and the latter one-third of the time. The major study shall be research work, the results of which shall be incorporated in a thesis.

The major and minor studies shall be so selected as to support and strengthen each other.

No under-graduate study shall be selected as a major study. Under-graduate studies may be taken for part of the minor work only with the approval of the Committee on Post-Graduate Study, and the heads of the departments in which the work is to be done.

The candidate shall have a reading knowledge of French or German.

Application for graduate study, specifying the departments in which the major and minor subjects are to be taken, shall be filed with the President within four weeks of the beginning of the first term's resident work, which, in all cases, shall be not later than October 1st, next preceding the commencement at which the degree is to be granted.

A detailed outline of the work to be done in the major and minor subjects approved by the heads of the departments in which the work is to be taken shall be filed with the Committee on Post-Graduate Study, within eight weeks of the opening of the semester in which resident work is begun.

The candidate for the master's degree shall apply in writing for examinations not later than May 1st, and such examinations shall be given not later than May 15th.

Graduates of other institutions desiring to become candidates for post-graduate degrees in this institution shall be required to show to the Committee on Post-Graduate Study evidence of under-graduate work equivalent to the corresponding course in this institution, and if any deficiency appears in the subjects elected for post-graduate work, to make up such deficiency.

Candidates for advanced degrees are expected to appear on the Commencement stage to receive such degrees.

PROFESSIONAL DEGREES IN ENGINEERING.

The several departments of the Division of Engineering confer the following professional degrees: In Mechanical Engineering, the degree of Mechanical Engineer, (M. E.); in Civil Engineering, the degree of Civil Engineer, (C. E.); In Electrical Engineering, the degree of

Electrical Engineer, (E. E.); In Mining Engineering, the degree of Mining Engineer, (E. M.)

Applications for professional engineering degrees will be received from graduates of the engineering departments of this College or from other colleges offering equivalent courses of study in engineering.

To be entitled to the professional degree, the applicant therefor shall have devoted not less than one year to resident study along lines satisfactory to the engineering faculty, shall have been engaged for not less than one year in a responsible professional position, and shall present a satisfactory thesis, or he shall have been engaged for not less than five years in a responsible professional position and shall present a satisfactory thesis.

In this connection a responsible professional position means practical engineering experience, requiring the exercise of skill or executive ability in designing or construction work. References or personal knowledge of the facts will be required by the engineering faculty.

Further information as to the lines of work open to graduate students can be found under the courses of study described elsewhere.

COLLEGE HOSPITAL.

The actual sanitary condition of the College is excellent. The buildings are situated on high ground with good natural drainage. The water supply is exceptionally pure and abundant. The sewer system and sewerage disposal plant are the best that modern sanitary engineering can devise. Nevertheless in this, as in other like institutions, whose students are drawn from a wide territory, various diseases are brought here by the students themselves. In order to control epidemics and properly care for other cases of illness or injury, a hospital is provided. This hospital is under the charge of the College Physician, assisted by a professional nurse, a competent housekeeper, and a student hospital steward.

The expenses of the hospital are defrayed from a fund accruing from the hospital fees paid by students.

A hospital fee of $2.50 per semester is required of all students living in College buildings.

The privileges of the hospital are also extended to students not rooming in the College buildings, provided, 1st, that the physician shall be paid for calls at their residences, and 2nd, that the usual hospital fee shall be paid within the first ten days of the student's arrival.

Students not making the hospital deposit will be admitted to the hospital upon the basis of $10.00 per week, within the discretion of the college physician.

The hospital fee insures to the payer thereof, medical attendance, nursing and medicine in illness or accident, and consultation and medicine for minor ailments in accordance with the regulations herein published.

The charges named are based upon the probable actual cost of medical attendance and hospital service, and the fund created is carefully devoted to these purposes. The College can not assume any liability beyond the extent of the fund so created. The hospital has proved to be a great blessing to the students.

The following regulations apply to the privileges of the hospital:

1st. Students entering the hospital shall be charged $3.00 per week for board, room, light and heat. But for any time in excess of three consecutive weeks per term spent in the hospital an additional charge above that mentioned shall be made of $4.00 per week.

2nd. In case a special nurse or physician is employed the expense shall be borne by the particular patient, the selection of such nurse or physician to be approved by the College physician.

3rd. The College assumes no responsibility whatever nor shall the privileges of the hospital be extended to cases of smallpox.

4th. The President and College Physician shall require of students entering the college a certificate of a reputable physician showing successful vaccination.

5th. The College physician is authorized to exclude from the College dormitories and recitation rooms any person afflicted with a contagious disease.

COLLEGE LIBRARY.

The College library, consisting of over 20,000 volumes and about 5,500 pamphlets, is chiefly a library of reference, containing standard and technical works bearing particularly upon the lines of study pursued in the College. Magazines, periodical literature bearing upon the special work of the students, and daily papers are furnished for the use of the students. The reading room of the library is a large, well lighted room, open eleven hours daily except Sunday, when it is open only outside of Church hours. Personal assistance will be given by the librarian and assistant to any who desire help in reference work.

RELIGIOUS LIFE OF THE COLLEGE.

Although a state school, and hence non-sectarian, the College life is dominated by religious influences.

The Young Men's and Young Women's Christian Associations, Bible Study Classes, and Mission Classes, consisting of members from both faculty and student body have a helpful influence not only upon the religious but upon the social life of the College. The members of the Associations assist in the reception of the new students and in the maintenance of religious work. The work is under the direction of a general secretary who devotes his entire time to the work.

The faculty and students assemble daily in the Chapel at 11:45 A. M. for public worship. On each Sunday morning at 10:45, Chapel exercises are conducted by some prominent clergyman invited for the occasion. In all these services, as well as in the General Convocation of students held the first Tuesday of each month, the object is to emphasize and enforce the principles of morality and of the Christian religion.

There are nine different denominational churches in Ames, all of which are closely in touch with and cordially invite the students to co-operate with them in all of their religious services.

ALUMNI ASSOCIATION.

The Alumni Association of the Iowa State College was organized in 1876. Its purpose is to promote the highest interest of the institution and to increase the friendship and sympathy among the students and alumni.

The present officers of the association are: E. W. Stanton, '72, Honorary President; T. L. Smith, '77, President; Mrs. Olive W. Curtiss, '87, Secretary; L. C. Tilden, '88, Treasurer; and Mrs. Winifred Dudley Shaw, '76, Historian. The annual business meeting and banquet are held on Wednesday and Thursday of Commencement Week. A local association was organized in April, 1903, in order to arrange for the annual meetings and to keep the alumni in close touch with one another. Branch associations have been organized in Des Moines, Washington, D. C., New York, Pittsburg, Chicago, Philadelphia, Schenectady and St. Louis.

The Alumni Hall, now being erected, will add much to the association, as it will afford a place where all alumni can meet when visiting their Alma Mater.

COLLEGE PUBLICATIONS.

1. Catalogue, published in February, and giving general information about the College and its several departments.
2. College Compendium, an illustrated catalogue of the school.
3. Special announcements of the Agricultural, Veterinary and Engineering divisions, and of the Short Course and Good Roads School, one bulletin being published each month.
4. Bulletins recording the results of experimental studies carried on by the Agricultural and Engineering Experiment Stations.
5. Iowa Engineer, published bi-monthly by the Engineering Department of the College.
6. The Alumnus, a monthly publication, devoted to and published by the Alumni Association.

STUDENT PUBLICATIONS.

1. The Student, a weekly paper, published by a staff elected from the student body and devoted to the recording of such matters as pertain to the interest and welfare of the school.
2. The Bomb, an annual published by the Junior Class.
3. Iowa Agriculturist, published monthly by the Agricultural Club of the Iowa State College.

LITERARY SOCIETIES.

The work of the seven literary societies serves not only to supplement the social and literary work of the College, but also aids the student in securing that training so necessary to enable one to appear before an audience, the training which every student needs and which cannot be secured in the class room alone. It is the purpose of the officers of the College to keep each Friday evening open that the work of these societies may go on without interruption. Every student is invited and urged to join one of these societies.

DEBATING LEAGUE.

The Debating League is an organization composed of the Bachelor, Crescent, Phileleutheroi, Philomathian, Pythian and Welch literary societies. Its function is to arrange for and carry out debates, both inter-society and inter-collegiate. There is an inter-society debate each semester calling out four students from each society. Of these four students, two maintain the affirmative and two the negative, of the same proposition on the same night against opposing teams from other societies. During the year the inter-society contests give opportunity for forty-eight students to engage in vigorous debate and many others get practice in trying to win a place on their society teams. During the fall semester a debate is held with the Iowa State Normal School. Hereafter we will support a dual debate, thus calling out six debaters from each school. The triangular inter-collegiate debate with Drake University and Iowa College held during the spring semester also calls for six students to represent the Iowa State College. The debates arouse great interest, and to the participants, they bring great profit.

ORATORICAL ASSOCIATION.

The Oratorical Association is composed of three members from each of the literary societies and three from the faculty. This association, by providing for joint public programs, declamatory and oratorical contests, and society graduation, helps to increase the interest in the general literary work of the school.

Inter-society oratorical contests are held each fall semester and declamatory contests each spring semester, each society having one representative. The winner in the inter-society oratorical contest represents the College in the annual inter-collegiate contest in which Drake, Penn, Parsons, Upper Iowa University, Cornell, Des Moines, Coe, Lenox, Leander Clark, Tabor, Central University, Buena Vista College and Iowa State College are represented.

MUSICAL ORGANIZATIONS.

The College maintains a Choral Society, membership being open to students and citizens of Ames, a College Choir, and a Male Glee Club, all of which give frequent concerts and recitals. The musical organizations are under the supervision of the Director of Music.

A College Band of thirty-two pieces is maintained under the instruction of Charles L. Mundhenk, a member of the Iowa State Band of 1893. This band furnishes music in connection with the Military Department and also for all athletic and student assemblies.

DIVISION OF AGRICULTURE

DIVISION OF AGRICULTURE

CHARLES F. CURTISS, DEAN.
SPENCER A. BEACH, VICE DEAN.

The division of Agriculture offers to its students work in any of the following courses:

Course in Agronomy.
Course in Dairying.
Course in Animal Husbandry.
Course in Horticulture.
Course in Science and Agriculture.

These courses are so arranged as to furnish a good foundation from which a student may become either a successful farmer or may develop into a specialist in one of the many branches of the Agricultural industry. The department offers short as well as the regular four year courses, the difference being due largely to the degree in which the student wishes to specialize in any line of work. The farm as it is usually conducted is a union of many divisions of industry, and the shorter course confines itself to laying a foundation that will secure success in all of these, while the longer course seeks to direct the student into that line which will call forth and centralize his special ability and at the same time enable him to meet the variety of conditions that under all circumstances surround a successful life.

Past experience with these courses shows that they have met with more than the usual success in attaining their objects; as the shorter course has been productive of many successful farmers, and the longer course has been unusually successful in developing better farmers and more capable men in practical life and also in securing for our graduates prominent positions in the agricultural faculties of other colleges.

In the courses in practical agriculture, a field of work which is unsurpassed by any other college in the United States is open to our students. The national government gives to the college about thirty-five thousand dollars annually for original experimentation and instruction in agriculture and the sciences related to this industry. This supplemented by liberal state aid, enables the College authorities to make the fields and the barns veritable laboratories of extensive and most practical investigation and observation. The range is from the soil which produces, through all of its natural characteristics to whatever is grown in agriculture from germ to finish.

The farm consisting of 1030 acres of rolling prairies, bottom and woodland is stocked with good representatives of six breeds of horses, seven breeds of cattle, seven breeds of sheep and six breeds of hogs. These animals are used in class illustration and for the various experiments in breeding and feeding for milk, meat, wool, growth and maintenance, conducted by the Experiment Station as a department of the College. All the crops are grown for some educational purpose; all the animals are fed by rule and system, and the result of their management reported upon and used in class work.

Two commodious, well-lighted stock judging pavilions have recently been constructed, into which live animals are brought in the presence of the teacher and the class for careful study and intimate knowledge. An experimental barn with the recent and most approved methods of stalls, feeding and ventilation, is devoted exclusively to the original work of animal husbandry and agronomy, the work ranging over all the questions of breeding and maturing domestic animals.

The work of this department is designed to teach the sciences that underlie practical agriculture, and sufficient English, literature, mathematics, history, and other supplementary studies to sustain both scientific and practical agriculture and to develop the agricultural students to the level of the educated in any profession. Special attention is given to the improved methods in all of the various operations of farming, farm building, use of tools and machinery, and management of all kinds of stock and crops. The instruction embraces not only the principles but also the practices of agriculture.

AGRICULTURAL COURSES.

All students classified in the Agricultural courses will take the same work until the beginning of the Sophomore year, when the selection of the desired course will be made by the student.

Academic Year.

FIRST SEMESTER.

Algebra, 5	(Mathematics III.)
Rhetoric and Composition, 5	(English II.)
English History, 5	(History I.)
Elementary Botany, 2	(Botany I.)

SECOND SEMESTER.

Algebra and Plane Geometry, 5	(Mathematics XIII & V.)
English Classics, 5	(Literature IX.)*
Advanced American History, 4	(History II.)
Gesture and Voice, 1	(Public Speaking II.)
Ecology, 2	(Botany II.)

Freshman Year.

FIRST SEMESTER.

Corn Growing, 3	(Agronomy CI.)
Market Types of Cattle and Sheep, 2	(Animal Husbandry I.)
Home and Market Gardening, 2	(Horticulture I.)
French, 5 or	(Language I.)
German 5, or	(Language V.)
Spanish, 5	(Language XXX.)
Narration and Description, 3	(English X.)
**Solid Geometry, 2	(Mathematics VIa.)
Constitutional History, 2	(History XIX.)
Shop Work, 1	(Agronomy XXXII or XXXIII.)
Military,	(Military I.)
Library, 4 hours per semester.	

SECOND SEMESTER.

Grain Growing, 3	(Agronomy CII.)
Market Types of Dairy Cattle, Horses and Swine, 2	(Animal Husbandry II.)
Farm Dairying, 3	(Dairying XII.)
Plant Propagation, 3	(Horticulture II.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
Exposition, 3	(English XI.)
Shop Work, 1	(Agronomy XXXII or XXXIII.)
Military,	(Military II.)

---

* Students who present evidence of satisfactory work in one year High School literature will not be required to take Literature IX.

**Graduates of accredited schools who are deficient in algebra, but have a grade in solid geometry, will take advanced algebra, two hours in the Freshman year in lieu of solid geometry.

DEPARTMENT OF AGRONOMY.

Agronomy is the science of the Field and its crops. It treats of Farm Management, the application of economic business methods to farm practices; Field Crops, their classification, production and improvement; Soils, their fertility, cultivation and improvements; and Agricultural Engineering, the tools, machinery, fences and drains of the farm. The Department of Agronomy consists of the three coordinate Departments, Farm Crops, Agricultural Engineering and Soils.

WINTER COURSE IN CORN AND GRAIN JUDGING.

December 30, 1907, to January 11, 1908.

A short course in corn and grain judging has been established in order to meet the demand for instruction in this work. This course begins December 30, 1907, and continues two weeks.

Instruction will be given in the methods of selecting, testing, and preparing seed for planting; in the methods of cultivation; and the characteristics and adaptability of different varieties of corn to various sections of the state. A comparison of corn cultivators, and of planter tests with both rotary and edge-drop planters will be made.

This course is especially planned for the farmer who cannot take advantage of the work of the regular College course. Those wishing to become corn judges qualified to judge corn at farmers' institutes, fairs, and expositions will have an opportunity at this corn school to fit themselves for this work.

Samples of all the leading varieties of corn grown in Iowa will be on exhibition and will be used for judging purposes. A fire proof two story stock and grain judging pavilion has been erected for this work. An examination will be held at the close of the school, and corn judging certificates will be issued, by the Iowa Corn Growers' Association, to those who prove themselves proficient.

The new equipment of the Grain Judging Pavilion, which has been installed at a cost of $3,000, offers excellent facilities for small grain judging. The study of the commercial grading of wheat, oats, barley and rye is also given careful attention. This work is taken up on a basis that is very similar to the grading practiced in the Chicago markets.

To partially cover the expense of additional instructors and facilities for judging, a tuition fee of $3.00 to residents and $5.00 to non-residents will be charged, the one fee covering the instruction in either grain and stock judging, or in grain judging and horticulture. The work during the course will be so arranged that the students' time will be equally divided between either grain and stock judging, or grain judging and horticulture.

COURSE IN AGRONOMY.

For Freshman year, see Course in Agriculture, page 58. All Agricultural students will take the same work until the beginning of the Sophomore year.

Sophomore Year.

FIRST SEMESTER.

Farm Engineering, 3	(Agronomy XXX.)
Corn Breeding and Judging, 2	(Agronomy CIII.)
Breed Types of Cattle and Sheep, 4	(Animal Husbandry III.)
Orcharding, 3	(Horticulture III.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXI.)
Argumentation, 2	(English XII.)
Military,	(Military III.)

Students who enter Sophomore in the fall of 1907, will take Agronomy XXXII, one hour and Dairying XII three hours; and omit English XII, two hours and Agronomy CIII, two hours.

SECOND SEMESTER.

Farm Machinery and Farm Motors, 3	(Agronomy XXXI.)
Grain Breeding and Judging, 2	(Agronomy CIV.)
Breed Types of Dairy Cattle, Horses and Swine, 4	(Animal Husbandry IV.)
Elementary Forestry, 3	(Horticulture XIV.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXIII.)
Vegetable Histology, 4	(Botany III.)
Military,	(Military IV.)

Students who are classified Sophomore in the spring of 1908 will take Agronomy XXXIII, one hour and English XII, two hours; and omit Agronomy CIV, two hours.

Junior Year.

FIRST SEMESTER.

(Required)

Soil Physics, 5	(Agronomy L.)
Agricultural Analysis, 4	(Agricultural Chemistry XXV.)
Principles of Breeding, 2	(Animal Husbandry VIII.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 99, enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Soil Fertility, 5	(Agronomy LI.)
Research Work, 3	(Agronomy XXII, IX or LII.)
General Bacteriology, 4	(Botany XXX.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 100, enough work to make a total of from sixteen to twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required)

Farm Management, 3	(Agronomy VIII.)
Research Work, 3	(Agronomy LIII, IX or XXIII.)
Animal Nutrition and Packing House By-Products, 2	(Animal Husbandry IX.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 99, enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Thesis, 5	(Agronomy XVI.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 100, enough work to make a total of from sixteen to twenty hours per week.

DEPARTMENT OF FARM CROPS.

M. L. BOWMAN, ASSOCIATE PROFESSOR IN CHARGE OF DEPARTMENT.
E. P. HUMBERT, INSTRUCTOR IN FARM CROPS.

B. W. CROSSLEY, STUDENT ASSISTANT.

The new equipment recently installed in the Farm Crops Department enables it to give most efficient work in all of its courses. There has just been installed a new chemical laboratory which is for the special use of advanced students and post graduate students which offers special inducement to students desiring to fit themselves for college or experimental work.

The grain laboratory situated on the second floor of the stock and grain judging pavilion has just been supplied with the most modern equipment, making it the best and most completely equipped laboratory of its kind.

The demand for competent men trained along farm crops lines is gradually increasing. Farm managers are especially needed to fill positions on both large and medium sized tracts of land, at good salaries. Likewise men well trained along the line of farm crops are constantly in demand by large seed establishments and by the agricultural press. It is the purpose of the Farm Crops Department to help students fit themselves along these practical lines. The following courses are offered:

COURSES IN AGRONOMY.

FARM CROPS.

CI. Corn Growing. Required first semester, Freshman in all Agricultural courses. Includes study of methods of selecting, testing, grading, planting, cultivating, harvesting and storing of corn; commercial handling of corn, cost of production and uses of crop, the different conditions effecting the stand and quality of crop as studied in class room and under field conditions. Study is made of insect pests and diseases and means of eradication, also of kernels, ears and groups of ears, together with practice in selecting, germinating and grading corn and in calibrating the planter. Three hours credit. Recitations, two hours and laboratory three hours per week. Fee $1.50.

CII. Grain Growing. Required second semester Freshman in all Agricultural courses. Includes study of grains and other field crops; their adaptation to soil and climate, conditions effecting growth, methods of culture, principles underlying reproduction, germination, plant growth and improvement; also score card practice on cereals and forage crops. Three hours credit. Recitations, two hours and laboratory three hours per week. Fee $1.50.

CIII. Corn Breeding and Judging. Required first semester Sophomore in Agronomy Course. Includes a detailed study of all the leading varieties of corn, their origin, history and adaptation to the different localities. Also a careful study of the best methods to be employed in the improvement of corn by selection and breeding. Corn judging will be a special feature of the work. The distinguishing characteristics of the different varieties of corn will be given careful attention. Two hours credit. Laboratory six hours per week. Fee $2.00.

CIV. Grain Breeding and Judging. Required second semester Sophomore in the Agronomy Course. Includes a detailed study of all the leading varieties of small grains, their origin, history and adaptation to the different localities, also a careful study of the best methods to be employed in their improvement. Grain judging will be one of the chief features of the work, together with a study of the weed seeds found in the commercial grades of these grains. The distinguishing characteristics of the different varieties will be studied, also the uses to which the small grains are put. Two hours credit. Laboratory six hours per week. Fee $2.00.

VIII. Farm Management. Required first semester Senior year in Agronomy and Animal Husbandry, elective first semester, Junior or Senior year in all other Agricultural courses. This course includes the study of the different systems of extensive and mixed farming, problems confronting the farmer, circumstances influencing agricultural practices, the hired help, fencing, live stock, and a study of the methods pursued by our most successful farmers. A practical and thorough study of farm accounts is made a special feature. The extensive co-operation which the Farm Crops Department is having along the line of farm management with a large number of the best farmers of the state helps to make this a most practical course in systematizing the general farm practices. Three hours credit. Fee $2.00.

IX. Research Work in Farm Crops. Required second semester Junior, or first semester Senior in Agronomy by those students who do not elect research work in Agricultural Engineering or Soils. Original experimentation and study of special problems relating to cereal, forage, root and other crops. Experiments may be conducted in greenhouse or field. Includes the testing of vitality, purity of seeds, pollination and diseases of grains and their treatment. Prerequisites, Agronomy I and II. Three hours credit. Fee $2.00.

XI. Advanced Corn Judging. Elective first semester Junior or Senior year in all Agricultural courses. Intended to fit students more thoroughly to become competent corn judges at institutes and fairs. The time is devoted entirely to the judging of corn. All the leading varieties are given special consideration. Prerequisite, Agronomy I. Two hours credit. Laboratory six hours per week. Fee $2.00.

XVI. Thesis. Required second semester Senior year in Agronomy. Must be upon some subject requiring original work taken in Farm Crops, Agricultural Engineering or Soils. Five hours credit.

Graduate Work in Farm Crops.

Post graduate work may be taken in advanced grain judging. This consists of original investigations of any farm crop or crops, they being treated from both the scientific and practical standpoint. This work is designed to train students to hold positions with seed firms, in agricultural experimental work, along special seed or crop lines in the United States Department of Agriculture, or to still further prepare them to solve the complex problems of the farm. Having access to the fields and to the excellent laboratory facilities which are offered, post graduates may obtain a very thorough course from both the scientific and practical standpoint.

Commercial Judging and Grading of Grains.

An opportunity for study along the lines of commercial judging and grading of grains is also offered, thus preparing graduates for positions as grain inspectors. A graduate of any institution who has not had the equivalent of the work offered in the previous courses in Farm Crops, will be given an opportunity for taking a special course in judging and grading cereals and forage crops. A student pursuing advanced work in the commercial grading of grains must have six weeks training under an efficient inspector at an important grain center before completing the course.

DEPARTMENT OF AGRICULTURAL ENGINEERING.

J. B. DAVIDSON, ASSOCIATE PROFESSOR IN CHARGE OF DEPARTMENT.
A. E. MILLER, INSTRUCTOR.
J. T. HOOVER, ASSISTANT.

XXII. Research Work in Agricultural Engineering. Required second semester Junior year in Agronomy by all students who do not elect research work in Soils or Farm Crops. The large equipment of machinery and instruments in this department offers to the student a wide range of subjects for research work, as Drainage, Farm Water Supply, Sewerage, Road Construction, Fences, Use of Cement on the Farm, Testing and Calibrating various Farm Machines. Traction tests. Prerequisites Agronomy XXX and XXXI. Three hours credit. Fee, $2.00.

XXIII. Research Work in Agricultural Engineering. Required first semester Senior year in Agronomy by all students who do not elect research work in Soils or Farm Crops. Work same as in XXII. Prerequisites, Agronomy XXX and XXXI. Three hours credit. Fee, $2.00.

XXIV. Farm Implement Design. Elective first semester Junior or Senior year in all Agricultural courses. Includes the designing, construction, improvement and invention of farm implements, the study of the strength of materials entering into the implements, and the determination of the efficiency of the machine constructed. Prerequisites, Agronomy XXX and XXXI. Three hours credit. Recitation, one hour and laboratory six hours per week.

XXV. Rural Architecture. Elective second semester Junior or Senior year in all Agricultural courses. Embraces the planning of all farm buildings, a study of their construction, lighting, ventilation, cost, convenience, also testing the strength of building materials, and making of plans and specifications. Prerequisites, Agronomy XXX. Three hours credit. Recitation, one hour and laboratory, six hours per week.

XXVI. Dairy Engineering. Required second semester Sophomore year in Dairying and second semester of One Year Dairy Course, elective second semester Junior or Senior year in all other Agricultural courses. Special work in the management, care and operation of steam and gasoline engines. Two hours credit. Recitation one hour and laboratory three hours per week. Fee, $2.00.

XXVII. Farm Blacksmithing and Horse Shoeing. Elective first semester, Junior or Senior year in all Agricultural courses. An advanced course in blacksmithing. Two hours credit. Laboratory, six hours per week. Fee, $4.00.

XXVIII. Spraying Apparatus. Required second semester Junior year in Horticulture. Elective in second semester, Junior or Senior year of all other Agricultural courses. Precedes Field Practice in Horticulture VII in the same semester. A brief study of the mechanics, of pumps, also the care, operation and repair of spraying apparatus. One hour credit. Recitation, one hour and laboratory three hours per week for one-third semester. Fee, $1.00.

XXX. Farm Engineering. Required first semester Sophomore year in Agronomy, Animal Husbandry, Horticulture and Science and Agriculture. Includes instruction in Agricultural surveying, also a study of location of drainage districts, drainage laws, and best systems of drainage; location and construction of roads; also drawing, including lettering, map making, planning of drainage systems and road profiles; and field work, including care, adjustment and practice in the use of surveying instruments. Three hours credit. Recitation, two hours and laboratory three hours per week. Fee, $2.00.

XXXI. Farm Machinery and Farm Motors. Required second semester Sophomore year in Agronomy and Animal Husbandry, and elective second semester, Junior or Senior year in all other Agricultural courses. Includes a brief study of mechanics and materials; a study of the development, construction, functions and methods of operating, adjusting and repairing implements and machinery; also the study of the principles of draft and the production of power. Laboratory work devoted to the comparative analysis and testing the machines discussed in the class room. Three hours credit. Recitations, two hours and laboratory three hours. Fee, $2.00.

XXXII. Shop Work. Required either first or second semester of the Freshman year in the Agricultural course. Blacksmithing, forging and welding of iron and steel, and making and tempering hand-tools. Work designed to be especially helpful in the repair and operation of machinery. One hour credit. Three hours per week. Fee, $2.00.

XXXIII. Shop Work. Required either first or second semester of the Freshman year in the Agricultural course. Carpentry, care, use and sharpening of tools, laying off work, making of joints and framing. Work designed to be especially helpful in the planning, framing, and construction of farm buildings. One hour credit. Three hours per week. Fee, $2.00.

XVI. Thesis. Required second semester Senior year in Agronomy. Must be upon some subject requiring original work taken in Farm Crops, Agricultural Engineering or Soils. Five hours credit.

Post Graduate Work in Agricultural Engineering.

Students may take up graduate work along any of the many lines of Agricultural Engineering. This training will prepare them for government positions in agricultural engineering lines, for teaching in Agricultural colleges, or for becoming managers or superintendents of farms. Investigation may be carried on along any special line which they are fitted to pursue. The following subjects are suggested: (A) Irrigation, studying the principles employed and the machinery used and its efficiency, also practical work in sewage irrigation on the College farm; (B) Farm Architecture, the locating, designing, constructing, drawing up specifications and contracts, and estimating cost of all farm buildings; (C) Road Construction, thus fitting students for becoming highway engineers; (D) Investigation of Farm Implements, their construction and efficiency, also comparison of different makes. The department, having an equipment of $20,000.00 worth of modern implements, offers splendid opportunities for this line of investigation; (E) Farm Motors, the efficiency of steam traction and gasoline engines, also a comparison with the horse as power; and (F) Drainage, thus fitting students as drainage engineers. The co-operative experiments of this department with the United States Department of Irrigation and Drainage Investigation, furnish a good opportunity for study along this line.

DEPARTMENT OF SOILS.

WILLIAM HENRY STEVENSON, PROFESSOR.
IRA OBED SHAUB, ASSISTANT PROFESSOR.
E. B. WATSON, INSTRUCTOR.

On the first floor of Agricultural Hall, a commodious and well appointed soil laboratory accommodating seventy-five students has been thoroughly equipped for accurate and scientific work.

Over three thousand dollars have been expended for new soil apparatus, thus affording unsurpassed facilities for regular, advanced and graduate students in soils. The desks, hoods and balance rooms are of latest design; the desk apparatus for individual work is complete. Each desk is supplied with water, gas, steam, and compressed air. The centrifuge, shaker and other pieces of soil apparatus are run by individual motors.

The department also has two large rooms in the new greenhouse, which are devoted to pot culture work and various lines of soil experimental work. Plots on the Station farm are available for class and experimental work.

L. Soil Physics. Required first semester Sophomore year in Horticulture, and first semester, Junior year in Agronomy, Animal Husbandry, and Science and Agriculture. This course comprises a study of the origin, formation and classification of soils; soil moisture and methods of conserving it; soil temperature, and conditions influencing it; soil texture as effecting the supply of heat, moisture and plant food; surface tension, capillarity, osmosis, and diffusion as effecting soil conditions; the effect upon the soil and the crop of plowing, harrowing, cultivating, cropping, and rolling; washing of soils and methods of preventing the same; preparation of seed beds; cultivation and drainage as effecting moisture, temperature, root development and the supply of available plant food. Special attention will be given to the mechanical analysis of soils by the centrifuge method. The work also comprises the determination of the specific gravity, apparent specific gravity, volume, weight, porosity, water-holding capacity, and capillary power of various soils; also a study of the effect of mulches on the evaporation of water from the soil and the physical effects upon the soil of different systems of rotations and of continuous cropping. Five hours credit. Recitations, three hours and laboratory six hours per week. Fee, $3.00.

LI. Soil Fertility. Required second semester Junior year in Agronomy, Animal Husbandry, Horticulture, and Science and Agriculture. Maintenance of Fertility; Fertilizers and Rotations. The influence of commercial fertilizers, barnyard manure, and green manuring upon the quality and yield of various crops; the effect of different crops upon the fertility of the soil and upon succeeding crops; different systems of rotation and the effect upon the productiveness of the soil of various methods of soil management; also a study of the storing, preserving, and application of farmyard manure.

This work is supplemented by a study of manures, fertilizers and soils; their composition and agricultural value. Pot and field experiments are conducted to show the influence of fertilizers, applied to the soil in different quantities and at different times, upon the quality and yield of various crops. Leguminous crops as fertilizers and their place in crop rotation. A study is made of special types of soil in different sections of the State, such as clay, gumbo, loess, and peat with special reference to the best methods of handling and cropping these soils.

Prerequisites, Agronomy L and Chemistry XXV. Five hours credit. Recitations, three hours and laboratory six hours per week. Fee, $5.00.

LII. Research Work in Soil Physics. Required second semester Junior year in Agronomy for all students who do not elect research work in Farm Crops or Agricultural Engineering. Original research work in soil physics. Three hours credit. Three laboratory periods per week. Fee, $2.00.

LIII. Research Work in Soil Fertility. Required first semester Senior year in Agronomy for all students who do not elect research work in Farm Crops or Agricultural Engineering. Original investigations in soil fertility. Three hours credit. Laboratory, nine hours per week. Fee, $2.00.

LIV. Advanced Soil Physics. Elective second semester Junior or Senior year in all Agricultural courses. Study of the physical properties of soils; the determination of the temperature, moisture and soluble salt content of various soils under field conditions; green house, laboratory and field experiments to study the effect upon soil conditions of different methods of soil management, also a study of the soils of the United States; their location, classification and relation to crop production. This course is also intended for students wishing to make a study of soil surveying and mapping. Prerequisite, Agronomy L. Two hours credit. Laboratory, six hours per week. Fee, $2.00.

LV. Advanced Soil Fertility. Elective first semester Junior or Senior year in all Agricultural courses. Study of the fertility and productiveness of particular types or classes of soils; the nature and quantity of the elements of fertility in soils; the effect of fertilizers added to the soil upon the growth and yield of various crops as determined by pot cultures and experiments; also includes lectures and assigned readings, study of results of previous investigations, and written report of results of experiments and investigations made by the student. Prerequisites, Agronomy L and LI. Two hours credit. Recitation, one hour; laboratory, three hours per week. Fee, $2.00.

LVI. Investigation of Special Soils. Elective second semester Junior or Senior year in all Agricultural courses. This course is designed to enable the student to study one or more types of soil in which he may be particularly interested and to become familiar with correct principles and methods of soil management. Two hours credit. Recitation, one hour. Laboratory three hours per week. Fee, $2.00.

LVII. Soil Bacteriology. Elective second semester Junior or Senior year in all Agricultural courses. A study of those organisms found principally in the soil, including a study of the decomposition of nitrogenous and carbonaceous matter; nitrification, denitrification and the assimilation of atmospheric nitrogen, thus furnishing the student with a knowledge of the relation of bacteria to the soil and to plant growth. Prerequisites, a knowledge of chemistry and general bacteriology. Three hours credit. Lecture, one hour, and laboratory six hours per week. Fee, $4.00.

LVIII. Soil Seminar. Required of students in Advanced Soil Physics, Advanced Soil Fertility, Investigation of Special Soils, and Thesis work in Soils. One hour credit. One hour per week.

XVI. Thesis. Required second semester Senior in Agronomy. Must be upon some subject requiring original investigation, taken in Farm Crops, Agricultural Engineering or Soils. Five hours credit.

Graduate Work in Soils.

Post graduate work is offered in Soils which prepares the student for special work in the United States Bureau of Soils or in Colleges and State Experiment Stations. The work may be taken in either Soil Physics or Soil Fertility as a continuation of work taken as an under-graduate in this college or of any line of soil study which has fitted the student to pursue advanced work.

The graduate student will find excellent opportunities for investigations in soils along any of the following lines:

(A) The relation of soil types to crop production; (B) Soil types; methods of surveying and mapping; (C) The management of certain types of soil to improve their physical condition; (D) The mechanical composition of soils; Its influence upon the physical properties affecting crop production; (E) Erosion of soils and methods of prevention; (F) The relation of farm manures, fertilizing materials and crop rotations to the maintenance of fertility; (G) Pot culture, bottle and wire basket investigations to determine the manurial requirements of soils; (H) The comparative value of important types of soils based upon their composition; (J) Methods of investigating the soils of a state; (K) Methods of rendering more productive certain types of soil such as sandy, peaty and loess soils; (L) The relation of the organic matter content of soils to crop yields with special reference to the changes which take place in the plant food content and in the physical condition of the soil; (M) The soils of the United States with special reference to crop adaptation.

The graduate student is not limited to these lines of investigation; he may work on any subject which meets the approval of the head of the department.

DEPARTMENT OF DAIRYING.

G. L. MCKAY, PROFESSOR.
F. W. BOUSKA, ASSOCIATE PROFESSOR, DAIRY BACTERIOLOGIST.
FRED RASMUSSEN, ASSISTANT PROFESSOR.
JOHN BOWER, INSTRUCTOR.

The work of the Dairy Department is not only that of giving instruction and training to fit men for the various callings in dairying, but also for the purpose of Experimentation, the investigation and discovery of facts relating to this industry.

Owing to the rapid progress and the application of scientific principles to the dairy industry, it is necessary that those engaged in this work should keep in touch with new ideas and principles. In order to meet this demand, the dairy department offers first, a four year course for qualifying students to become competent teachers and investigators of dairying in agricultural colleges and experiment stations, inspectors of dairy products and creameries in municipal, state and government service, or superintendents of large creameries or dairy farms; second, a one year course, for fitting students for becoming operators of creameries, cheese factories, and dairy farms; and third, a two weeks short course, for acquainting experienced dairy and creamery men with new methods and investigations which they cannot learn in their own factories.

The Dairy department with its new building, the Dairy farm with its herd, offer unexcelled facilities for teaching Dairying in a thoroughly practical and scientific manner. The dairy farm of 200 acres, is well stocked with various types and breeds of milk cows. The milk from this herd together with the milk and cream shipped and hauled to the college supplies all the needs of the creamery.

The Dairy Building is a practical working creamery and cheese factory in operation throughout the year. The products made bring the highest quotations and have an enviable reputation in the markets of the United States and England.

The student becomes familiar with all the practical work connected with a commercial creamery, weighing the milk brought in by the patrons and testing the same, running the engines, caring for the factory rooms and machines, and shipping the butter. The aim is to teach not only how but why the work is so done. During the senior year, the students who have proven themselves capable, do original research work in the laboratory, the results of which if of value to others are reported in the bulletins of the Experiment Station.

The studies other than dairying offered in this course are such as give the student not only a knowledge of the scientific principles upon which this work depends, but also a broad and general education.

Students in all the dairy work are required to provide themselves with white suits, keep them clean and in good order.

WINTER COURSE IN DAIRYING.

(December 30, 1907, to January 11, 1908).

The prominent rank attained by students of the Iowa Dairy School in state and national contests has led to a demand for special instruction. A course in Butter Making and one in Farm Dairying are now offered during the winter in order to meet this demand.

In the course in Butter Making, special attention will be paid to the handling of hand separator cream so as to make the best grade of butter possible, the proper controlling of moisture and salt in butter, the removal of undesirable flavors from cream, the preparation of starters, and the pasteurization of cream.

This course is intended especially for experienced butter makers, inexperienced men not being admitted. A fee of $12.00 is charged for admission to this course in order to cover the expenses of securing extra instructors and of the materials used.

The course in Farm Dairying is especially intended for farmers, farmers' wives and daughters who are interested in improving the grade of the ordinary dairy butter. The instruction given will include the care and testing of both milk and cream, best methods of manufacturing butter on the farm, and the construction and care of the hand separator. A fee of $2.00 is charged for admission to this course.

COURSE IN DAIRYING.

For Freshman year see Course in Agriculture, page 58. All Agricultural students will take the same work until the beginning of the Sophomore year.

Sophomore Year.

FIRST SEMESTER.

Breed Types of Cattle and Sheep, 4	(Animal Husbandry III.)
Orcharding, 3	(Horticulture III.)

Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXI.)
Argumentation, 2	(English XII.)
Outlines of Economics, 3	(Economic Science IX.)
Military,	(Military III.)

Students who are classified Sophomore in the fall of 1907 will take Agronomy XXXII, one hour and Dairying XII, three hours; and omit English XII, two hours.

SECOND SEMESTER.

Milk Testing and Milk Inspection, 2	(Dairying XIII.)
Cheese Making, 2	(Dairying XV.)
Dairy Engineering, 2	(Agronomy XXVI.)
Breed Types of Dairy Cattle, Horses and Swine, 4	(Animal Husbandry IV.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXIII.)
Agricultural Economics, 3 or	(Economic Science X.)
French Revolution and XIXth Century, 3	(History VI.)
Military,	(Military IV.)

Students who are classified Sophomore in the spring of 1908 will take Agronomy XXXIII, one hour and English XII, two hours; and omit Economic Science X, three hours, or History VI, three hours.

Junior Year.

FIRST SEMESTER.

(Required)

Advanced Butter Making, 4	(Dairying XIV.)
Principles of Breeding, 2	(Animal Husbandry VIII.)
Agricultural Analysis, 4	(Agricultural Chemistry XXV.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 99 enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Technology of Milk, 1	(Dairying XVI.)
Fancy Cheese Making, 3	(Dairying XXIV.)
General Bacteriology, 4	(Botany XXX.)

Agricultural Analysis, 4	(Agricultural Chemistry XXVI.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 100, enough work to make a total of from sixteen to twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required)

Dairy Bacteriology, 4	(Dairying XVII.)
Scoring Butter and Cheese, 1	(Dairying XVIII.)
Research Work, 2	(Dairying XIX.)
Animal Nutrition and Packing House By-Products, 2	(Animal Husbandry IX.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 99, enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Factory Management, 3	(Dairying XX.)
Preparation of Ice Cream and Ices, 1	(Dairying XXI.)
Thesis, 2	(Dairying XXIII.)
Sanitary Science, 2	(Veterinary XLV.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 100, enough work to make a total of from sixteen to twenty hours per week.

COURSES IN DAIRYING.

I. **Dairy Practice.** Required the first and second semester in one year Dairy Course. The first semester, practical work in cheese making, the second, in butter making. From five to seven hours in practical laboratory work per day.

II. **Buttermaking.** Required the second semester in one year Dairy Course. Includes a study of the composition of milk and dairy products, the principles of gravity and centrifugal separation of cream, cream ripening, preparation of starters, churning, and preparation of butter for market. Sixteen lectures per semester.

III. Milk Testing. Required the second semester in the one year Dairy Course. A study of the Babcock test, and of the Farrington and Mann test for determining acidity, the use of the lactometer for detecting adulterations, and also the composite sampling and testing of individual cows. One hour credit.

IV. Factory Management. Required the second semester of the one year Dairy Course. Includes a study of the organization, construction, drainage and ventilation of creameries and the treatment of various by-products. One hour credit.

V. Bookkeeping. Required the second semester of the one year Dairy Course. Study of the best form of bookkeeping for the factory business. One hour credit.

VI. Dairy Bacteriology. Required the first semester of the one year Dairy Course. Application of the principles of bacteriology in the care of milk, and in butter and cheese making. One lecture per week.

VIII. Cheese Making. Required the first semester of the one year Dairy Course. Includes common and fancy cheese as Limburger, Brick, Swiss, Roquefort, Sage, Stilton, Pineapple, and Gouda. Sixteen lectures per semester.

IX. Scoring Butter and Cheese. Required the first semester of the one year Dairy Course. Study of standard market requirements for dairy products, including the examination and scoring of both butter and cheese. Ten lectures per semester.

For the above courses, all of which are offered in the one year Dairy Course, a fee of $10.00 per semester is charged.

XII. Farm Dairying. Required the second semester of the Freshman year in the Agricultural Course. Includes a general study of the secretion, composition, separation, adulteration and acidity of milk, the determination of fat, preparation of starters, ripening of cream, and churning and packing butter. Three hours credit. Recitations, two hours and laboratory, three hours per week. Fee, $3.00.

XIII. Milk Testing and Milk Inspection. Required the second semester of the Sophomore year in the Dairy Course and of Juniors in the Veterinary Course. A study of Babcock test, Farrington's and Manns' test for determining acidity, the use of lactometer for detecting adulteration, composite sampling, and testing of individual cows, and detection of different preservatives and adulterations. Two hours credit. Recitation, one hour, and laboratory three hours per week. Fee, $2.00.

XIV. Advanced Butter Making. Required the first semester of the Junior year in the Dairy Course and elective the first semester of the Junior or Senior year in all other Agricultural courses. A study of the physical and chemical properties, secretion, composition and separation of milk, effect of different degrees of acidity of the cream upon the butter, the principles of churning, packing and marketing butter, and the operation of churns and separators. Prerequisites, Agricultural Chemistry XXI. Four hours credit. Recitations, three hours and laboratory three hours per week. Fee, $2.00.

XV. Cheese Making. Required the second semester of the Sophomore year in the Dairy Course and elective the second semester of the Junior or Senior year in all other Agricultural courses. A study of the importance of the quality and composition of milk in the manufacture of Cheddar cheese; the principles involved in cutting, heating milling, salting and pressing the curd, curing and marketing; influence of organized and unorganized ferments in cheese; and the construction and ventilation of cheese curing rooms. Two hours credit. Recitation, one hour and laboratory, three hours per week. Fee, $2.00.

XVI. Technology of Milk. Required the second semester of the Junior year in the Dairy Course and elective the second semester of the Junior or Senior year in all other Agricultural courses. A study of the utilization of milk and its products, as the preparation of condensed, certified, modified, and hygienic milk, milk sugar, casein, and the food value of milk and its products. Prerequisites, Agricultural Chemistry XXI, XXIII and XXV. Recitation, one hour per week.

XVII. Dairy Bacteriology. Required the first semester of Senior year, in the Dairy Course and elective the first semester, Junior or Senior year in all other Agricultural courses. A study of the functions of bacteria and the application of bacteriological principles to dairy work. Prerequisites, Botany XXX, and Chemistry XXI, XXIII, XXV and XXVI. Four hours credit. Recitations, two hours and laboratory, six hours per week. Fee, $6.00.

XVIII. Scoring Butter and Cheese. Required the first semester of the Senior year in the Dairy Course. A study of the standard market requirements for dairy products, also the examination and scoring of butter and cheese. One hour credit. Fee, $2.00.

XIX. Research Work. Required the first semester of the Senior year in the Dairy Course. A study of various authorities on Dairying together with the work of the experiment stations on this subject. Prerequisites, Botany XXX, Dairying XIV and XV. A knowledge of French and German is recommended. Two hours per week.

XX. Factory Management. Required the second semester of the

Senior year in the Dairy Course. Consists of the location, organization, construction, drainage, and ventilation of factories, the treatment of the by-products, and creamery refrigeration, thus qualifying a student to superintend or manage a large factory or dairy establishment. It is advisable for students to put the laboratory in during vacation or when work can be done during consecutive days. Prerequisite, Dairy XIV. Three hours credit. Lecture, one hour and laboratory, six hours per week.

XXI. Preparation of Ice Cream and Ices. Required the second semester of the Senior year in the Dairy Course. A study of the preparation of ice cream, sherbets, and ices made on a private or commercial scale. Both lectures and laboratory. One hour credit. Fee, $1.00.

XXIII. Thesis. Required the second semester of the Senior year in the Dairy Course. Original work on some dairy subject. May be worked out in co-operation with the departments of chemistry and bacteriology. Students should consult the professor concerning their subject at or before the beginning of their Senior year. Two hours per week.

XXIV. Fancy Cheese Making. Required the second semester of the Junior year in the Dairy Course. Includes making the varieties found in the American market as Limburger, Swiss, Brick, Roquefort, Sage, Stilton, Pineapple, Gouda, Gorgonzola, and Neufchatel. Three hours credit. Lecture, one hour and laboratory, six hours per week.

ONE YEAR COURSE IN DAIRYING.

The one year course in dairying is designed to meet the needs of those who want to acquire a knowledge of practical dairy methods as well as the scientific principles underlying the work. This course includes one college year beginning in August and ending in June. Students completing this course will be given certificates when evidence is furnished that they have successfully for one year operated a creamery or other dairy establishment.

ONE YEAR COURSE IN DAIRYING.

FIRST SEMESTER.

Dairy Practice, 6 days per week	(Dairying I.)
Cheese Making, 16 lectures	(Dairying VIII.)
Feeding Dairy Stock, 2	(Animal Husbandry XIX.)
Dairy Chemistry, 1	(Chemistry XXVIII.)

Scoring Butter and Cheese, 10 lectures	(Dairying IX.)
Dairy Bacteriology, 1 lecture	(Dairying VI.)

SECOND SEMESTER.

Dairy Practice, 6 days per week	(Dairying I.)
Butter Making, 16 lectures	(Dairying VIII.)
Milk Testing, 1	(Dairying III.)
Bookkeeping, 20 lectures	(Dairying V.)
Breeding and Judging Dairy Stock, 2	(Animal Husbandry XVIII.)
Factory Management, 1	(Dairying IV.)
Dairy Engineering, 2	(Agronomy XXVI.)

DEPARTMENT OF ANIMAL HUSBANDRY.

W. J. KENNEDY, PROFESSOR.
WAYNE DINSMORE, ASSISTANT PROFESSOR.
J. A. MCLEAN, ASSISTANT PROFESSOR.
H. G. VAN PELT, ASSISTANT PROFESSOR AND SUPT. OF DAIRY FARM.
E. T. ROBBINS, ASSISTANT ANIMAL HUSBANDMAN.
H. C. PIERCE, INSTRUCTOR IN CHARGE OF POULTRY.
R. L. GRIBBEN, ASSISTANT.

The department of Animal Husbandry stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of domesticated animals. Because of the importance of the live stock industry to the welfare of the state and because of the demand for instruction in this line, the equipment for instruction has been made as complete in every detail as possible.

The herds and flocks, established at an early date have been added to from time to time until our equipment in this line, consisting of almost all recognized breeds of animals, places us in a position to do work in Animal Husbandry lines which cannot be accomplished in those institutions where such specimens are not furnished for instruction. Believing that training the eye is the only way to make a young man a proficient judge of live stock, the work of the lecture room and laboratory is demonstrated by the use of living specimens.

The two commodious judging pavilions, located near the barns afford ample room for dividing the classes into many sections thus allowing individual work.

An excellent collection of horses representing all the market classes and the breeds of both light and heavy types is maintained for instruction purposes. Among these are good representatives of the Shires, Percherons, Clydesdales, French Coachers, Hackneys, Standard breds, and American Saddle Horses. Some of the horses are imported; while the others have been purchased with much care in their selection, from the best breeders on the continent.

More than two hundred head of cattle, representing all the leading beef, dual purpose, and dairy breeds are maintained on the farm. Complete breeding herds of most of the breeds are kept. An excellent collection of steers, representing the highest type of fat steer, and all the other classes and grades to be found in our leading markets down to the very lowest grades, is always available for class work. This affords our students an excellent opportunity to study the market demands and to know what constitutes each class, also why there is such a wide margin in the prices paid for cattle by the packer.

The dairy farm is well stocked with dairy cattle, including a herd of a hundred representatives of the Holsteins, Jerseys, Guernseys, Ayreshires, milking Shorthorns, with good sires of the different breeds. This equipment affords an excellent opportunity for class work when studying the origin, history, and development of the different breeds of dairy cattle, their characteristics and the conditions under which they are evolved; also for carrying on investigations along the lines of breeding, feeding and management of the dairy herd for profit; and the relative values of home grown feed stuffs and by-products in the production of milk and butter fat.

The flock of sheep, consisting of over 200 head of seven different breeds have been carefully selected to represent the type and characteristic of each breed both in regard to form and wool bearing qualities. In addition to the breeding flocks, the department has a choice collection of fat wethers which affords an opportunity for the student to familiarize himself with the highest type of finished mutton sheep. All these are available for class work.

In the swine department, representatives of six breeds of the best American and British varieties are maintained. As in the other departments, the aim in this has been to keep in touch with the modern ideas of leading breeders, both in regard to breeding and the type of the animals in these breeds.

At all seasons of the year there is more or less feeding of market stock being done on the farm and in connection with the Experiment Station, so that excellent material is always available for instruction purposes regarding the qualities that add to the value of stock for the ordinary market. Having pure bred representatives, it is easy to inform the student in a practical way on the finer points of color, type, and other characteristics that relate to the pure bred classes of stock.

To assist further in this work, the herd books of the different American and foreign registry associations are being constantly added to the library. The College possesses the most complete set of the English Shorthorn herd books in existence in America. Through herd book study, the student is enabled not only to inform himself in regard to pedigrees, but he is enabled also to study the different scales of points which the breeders have adopted to represent the highest types of the various breeds.

The department is also equipped with photographs, charts, and lantern slides which are used in the lecture room when it is impossible to illustrate with the living animal. The abundant material available from the herds and flocks is used extensively in all lectures and score card practice. By means of score cards prepared by the department, the students are brought in close contact with the animals, and through them are informed on the points of market merit desirable in ordinary stock while later the use of the official scale of points for the different breeds in a similar way, makes them skillful in judging representatives of different breeds.

As soon as the student is familiar with the use of the score card, comparative judging is introduced. In comparative judging from four to six animals are used, and each student is required to place all the animals in order of merit, and write down clearly and concisely on a blank folder, prepared especially for this work, full reasons for making his awards. This kind of work teaches the student to compare animals and to balance the weak and the strong points of each in making his final awards. As soon as the student demonstrates his ability to place classes well, herd groups and sweepstake classes are introduced during his Senior year's work. This kind of work is similar to the most difficult judging done at our leading state fairs and international expositions. As soon as the student shows that he possesses the qualifications needed to judge stock in the show ring, he is sent out, in answer to the many requests from the secretaries, to judge various classes of stock at county fairs. This in connection with his college work, results in establishing the lessons learned in the class room.

Positions Open for Men Trained Along Animal Husbandry Lines.

There is a great demand for competent young men trained along the lines of practical and scientific Animal Husbandry work, men who combine their college training with practical experience and native ability. Such is the training offered to the young men in this course. The demand for such students is unlimited at a compensation not exceeded in any other calling. A few of the many lines of work open to graduates of this department are: College and experiment station work, agricultural journalism, managers of stock farms, salesmen with commission merchants, buyers for the packing houses at the many stock yard centers, and salesmen of animal feedstuffs manufactured by the packing houses, glucose companies, linseed and cotton seed oil companies.

Clay, Robinson & Co. Fellowship Prizes.

Clay, Robinson & Co., Live Stock Commission Merchants, Union Stock Yards, Chicago, offer annually $1,000.00 in prizes to be awarded to the Agricultural Colleges making the best exhibit of live stock at the International Live Stock Exposition held at Chicago in December of each year. They stipulate that the money won by the various colleges shall be used for the establishment of fellowship prizes to be awarded to graduate students in the department of Animal Husbandry. These fellowships, amounting to $300.00 per student annually, are granted by the Board of Trustees upon the recommendation of the dean of the Division of Agriculture and the head of the department. A student holding a fellowship may pursue post-graduate work in Animal Husbandry.

WINTER COURSE IN STOCK JUDGING.

(December 30, 1907, to January 11, 1908).

In response to a widespread demand for special short course instruction in the judging and feeding of animals, a two weeks' course has been established during the winter vacation. This course will begin December 30, 1907, and continue for two weeks. It will be devoted exclusively to score card practice, and judging of horses, cattle, sheep, and hogs, and lectures on feeding the same.

In this work special attention will be given to the selection of animals best suited for feeding purposes. Good specimens of the highest type of fat steers and ideal representatives of all the various breeds will be used for class work. At the conclusion of the cattle work a slaughter test and block demonstration of the various market types of steers will be conducted under the supervision of John Gosling, Kansas City, Missouri. This course is intended especially for the man on the farm that cannot avail himself of the opportunity to take a complete course.

Special courses both in corn judging and in horticulture will be given at the same time and the work will be so arranged that all those present may take any two lines of work.

To cover in part the expense of procuring additional help and stock for demonstration a tuition fee of $3.00 for residents and $5.00 for non-residents will be charged for admission to this course, but one fee will cover the instruction in either grain and stock judging or in stock judging and horticulture.

COURSE IN ANIMAL HUSBANDRY.

For Freshman year, see Course in Agriculture, page 58. All Agricultural students will take the same work until the beginning of the Sophomore year.

Sophomore Year.

FIRST SEMESTER.

Breed Types of Cattle and Sheep, 4	(Animal Husbandry III.)
Farm Engineering, 3	(Agronomy XXX.)
General Zoology, 5	(Zoology II.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXI.)
Orcharding, 3	(Horticulture III.)
Military,	(Military III.)

SECOND SEMESTER.

Breed Types of Dairy Cattle, Horses and Swine, 4	(Animal Husbandry IV.)
Farm Machinery and Farm Motors, 3	(Agronomy XXXI.)
General Zoology, 5	(Zoology III.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXIII.)
Argumentation, 2	(English XII.)
Military	(Military IV.)

Junior Year.

FIRST SEMESTER.

(Required.)

Live Stock Management, 2	(Animal Husbandry XI.)
Poultry Judging, 3	(Animal Husbandry XXX.)
Agricultural Analysis, 4	(Agricultural Chemistry XXV.)
Embryology, 3	(Zoology V.)
Soil Physics, 5	(Agronomy L.)

(Electives.)

In addition to the above required studies, the student may select from the list of electives on page 99, enough work to make a total of not exceeding twenty hours per week.

SECOND SEMESTER.

(Required.)

Principles of Breeding, 2	(Animal Husbandry VIII.)
Live Stock Management, 2	(Animal Husbandry XII.)
Poultry Houses, Feeding and Management, 3	(Animal Husbandry XXXI.)
Animal Parisites, 2	(Zoology VIII.)
Soil Fertility, 5	(Agronomy LI.)
Agricultural Analysis, 4	(Agricultural Chemistry XXVI.)

(Electives.)

In addition to the above required studies, the student may select from the list of electives on page 100, enough work to make a total of not exceeding twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required.)

Advanced Live Stock Judging, 2	(Animal Husbandry VI.)
Animal Nutrition and Packing House By-Products, 2	(Animal Husbandry IX.)
Obstetrics, 1	(Veterinary XIX.)
Sanitary Science, 2	(Veterinary XLIV.)
Anatomy of Domestic Animals, 2	(Veterinary LV.)

Farm Management, 3 (Agronomy VIII.)

(Electives.)

In addition to the above required studies, the student will select from the list of electives on page 99, enough work to make a total of of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required.)

Herd Book Study, 2	(Animal Husbandry VII.)
Thesis, 2	(Animal Husbandry X.)
Beef Production, 1	(Animal Husbandry XIII.)
Pork Production, 1	(Animal Husbandry XIV.)
Milk Production, 1	(Animal Husbandry XV.)
Mutton and Wool Production, 1	(Animal Husbandry XVI.)
Horse Feeding, 1	(Animal Husbandry XVII.)
Horse Shoeing, 2	(Veterinary XVI.)
Conformation and Soundness, 2	(Veterinary XVIII.)
Evolution of Animals, 1	(Zoology VI.)

(Electives.)

In addition to the above required studies, the student will select from the list of electives on page 100, enough work to make a total of of from sixteen to twenty hours per week.

COURSES IN ANIMAL HUSBANDRY.

I. Market Types of Cattle and Sheep. Required the first semester of Freshman year in the Agricultural course and first semester of Sophomore year in Veterinary Course. Includes the judging of different market classes of cattle, both beef and dual purpose, and sheep, both mutton and wool. Credit 2 hours. Two 2-hour judging periods per week. Fee $2.00.

II. Market Types of Dairy Cattle, Horses and Swine. Required the second semester of Freshman year in the Agricultural course and second semester of Sophomore year in Veterinary course. Includes judging different market classes of dairy cattle, light and heavy horses, and swine, (bacon and fat). Two 2-hour judging periods per week. Fee $2.00.

III. Breed Types of Cattle and Sheep. Required the first semester of Sophomore year in Agronomy, Dairy, and Animal Husbandry courses, and first semester of Junior year in Veterinary course. Includes judging representatives of different breeds according to their official standards, a study of their origin, history, characteristics, and adaptability to different conditions of climate and soil. Prerequisite, Animal Husbandry I. Four hours credit. Lectures, two hours and two 2-hour judging periods per week. Fee, $2.00.

IV. Breed Types of Dairy Cattle, Horses and Swine. Required the second semester of Sophomore year in Agronomy, Animal Husbandry, and Dairy courses, and second semester of Junior year in Veterinary course. Includes judging of representatives of different breeds according to their official standards, a study of their origin, history, characteristics, and adaptability to different conditions of climate and soil. Prerequisite, Animal Husbandry II. Four hours credit. Lectures, two hours and two 2-hour judging periods per week. Fee, $2.00.

VI. Advanced Live Stock Judging. Required the first semester of Senior year in Animal Husbandry course. Includes judging horses, cattle, sheep and swine, especially in groups similar to county and state fair work. Prerequisites, student must be classified a regular Senior in Animal Husbandry courses or special in Animal Husbandry with credits in Animal Husbandry I, II, III and IV. Two hours credit. Two 2-hour judging periods per week. Fee, $2.00.

VII. Herd Book Study. Required the second semester Senior year in Animal Husbandry and elective the second semester of Junior or Senior year in all other Agricultural courses. Includes a study of herd books, with a view to becoming acquainted with the pedigrees of the leading strains and families of the different breeds of livestock. Prerequisite, Animal Husbandry VIII. Recitations, two hours per week.

VIII. Principles of Breeding. Required the second semester of the Junior year in the Animal Husbandry course, first semester, Junior year in the Agronomy, Dairy and Veterinary courses, elective first semester, Junior or Senior year in all other Agricultural courses. Embraces a study of principles of breeding, including selection, heredity, atavism, variation, fecundity, with the presentation of methods of breeding, in-and-in breeding, cross breeding, etc., and a historical study of their results, also the several features relating to the higher breeding of pure bred stock. Prerequisites, Animal Husbandry III and IV. Recitations, two hours per week.

IX. Animal Nutrition and Packing House By-Products. Required the first semester of Junior year in Veterinary course, the first semester of Senior year in Agronomy, Animal Husbandry, Dairy, and Science and Agriculture courses, and elective in Horticulture course. Study of anatomy and physiology of the digestive system, the purpose of nutrition, the theory and practical economy of rations for growth, fattening, milk or maintenance; sanitation of feeds and hygiene of the farm. Prerequisites for Agricultural courses, Chemistry XXI, XXIII and XXV, for Veterinary students, Chemistry I, IV, X and XIII. Recitations, two hours per week.

X. Thesis. Required the second semester of Senior year in Animal Husbandry course. Must be along some line to be arranged with the head of the department. Two hours credit.

XI. Live Stock Management. Required the first semester of Junior year in Animal Husbandry, first semester, Freshman in Veterinary, and elective first semester Junior or Senior year in all other Agricultural courses. The housing, care and management of beef and dairy cattle. Two hours credit. Lecture, one hour and laboratory two hours per week. Fee, $2.00.

XII. Live Stock Management. Required the second semester of Junior year in Animal Husbandry, second semester Freshman in Veterinary, and elective second semester Junior or Senior year in all other Agricultural courses. The housing, care and management of horses, hogs and sheep. Two hours credit. Lecture, one hour and laboratory, two hours per week. Fee, $2.00.

XIII. Beef Production. Required the second semester of Senior year in Animal Husbandry course. A systematic study of the most successful and economical methods of producing beef cattle for market purposes; production of baby beef; advisability of long and short feeding periods; and the feeding of grain rations to cattle on grass. Prerequisite, Animal Husbandry IX. Offered only to students classified in regular Animal Husbandry course. One hour credit. Five 1-hour periods per week for first five weeks.

XIV. Pork Production. Required the second semester Senior year in Animal Husbandry course. A systematic study of most successful and economical methods of growing and finishing pigs of both the lard and bacon types for market purposes. Prerequisite, Animal Husbandry IX. Offered only to students classified in regular Animal Husbandry course. One hour credit. Five 1-hour periods per week for second five weeks.

XV. Milk Production. Required the second semester of Senior year in Animal Husbandry course. Study of various feeding stuffs and the methods of preparing and feeding same as related to most successful and economical production of milk. Prerequisite, Animal Husbandry

IX. Offered only to students classified in regular Animal Husbandry or Dairy course. One hour credit. Five 1-hour periods during four weeks following Animal Husbandry XIV.

XVI. Mutton and Wool Production. Required second semester Senior year in Animal Husbandry course. A thorough study of various feeding stuffs as related to economical production of mutton and wool. Prerequisite, Animal Husbandry IX. Offered only to students classified in regular course. One hour credit. Five 1-hour periods per week following Animal Husbandry XV.

XVII. Horse Feeding. Required the second semester of Senior year in Animal Husbandry course. A study of most successful and economical methods of growing and developing young animals; most economical and satisfactory rations for horses at light, medium and heavy work; study of the feeding stuffs best adapted to the production of heavy and economical gains on horses which are being fattened for market. Prerequisite, Animal Husbandry IX. Offered only to students classified in regular Animal Husbandry course. One hour credit. Five 1-hour periods per week following Animal Husbandry XVI.

XVIII. Breeding and Judging Dairy Stock. Required second semester of One Year Dairy course. Judging dairy stock with the score card and by comparative judging; also study of principles, methods and practice of breeding dairy stock and their improvement. Two hours credit. Lecture, one hour and laboratory, one hour per week.

XIX. Feeding Dairy Stock. Required the first semester of one year Dairy course. Principles of feeding animals for the most economical production, with the composition and use of various feeding materials, feeding of dairy cows, including the influence of various feeding stuffs on the quantity, quality and composition of milk, butter and cheese. Two lectures per week.

POULTRY HUSBANDRY.

The Poultry Husbandry Department stands for all lines of work which pertain to the judging, selecting, breeding, feeding, development, care and management of the various breeds and classes of land and water fowls. In addition, the question of planning and location of the various kinds of buildings and yards will receive very careful attention. Because of the importance of this industry to the welfare of the state, and because of the demand for instruction in this line, the equipment for instruction and investigation purposes has been made as complete in every detail as possible.

XXX. Poultry Judging. Required first semester Junior year in the Animal Husbandry course, elective first semester Junior or Senior year in all other Agricultural courses. This course will include the judging of the various varieties of fowls for standard and market types. It will also include a study of fowl anatomy. Three hours credit. One 2-hour lecture period and one 3-hour laboratory period. Fee, $1.00.

XXXI. Poultry Houses, Feeding and Management. Required second semester Junior year in the Animal Husbandry course, elective second semester Junior or Senior year of all other Agricultural Courses. This course will include a study of poultry houses, incubators and brooders. In addition, a study will be made of the most profitable methods of feeding poultry, and considerable practice will be given in caponizing, killing and dressing fowls. Three hours credit. One 2-hour lecture period and one 3-hour laboratory period. Fee, $1.00.

XXXII. Advanced Practice in Feeding and Management. Elective first semester, Junior or Senior year in all Agricultural courses. This work is open only to those who have taken Courses XXX and XXXI. The student will be given charge of a pen of fowls and will be required to keep records of the amount consumed and the gains made This work will cover a period of three weeks, and the student must be present in the morning, at noon, and in the afternoon, time to be arranged by appointment with the instructor. One hour credit.

XXXIII. Incubator Practice. Elective second semester of the Junior or Senior year in all the Agricultural courses. This course is open only to students who have taken Courses XXX and XXXI. The course will include the study and practice in the operation and keeping of records of incubators. The course will cover a period of four weeks, and the student will be required to be present in the morning, at noon and in the afternoon, arrangement made by appointment with the instructor in charge. One hour credit.

Graduate Work in Animal Husbandry.

Post graduate work in Animal Husbandry may be taken along any of the following lines:

1. Animal Nutrition. Because of the large number of horses, cattle, sheep, and swine feeding experiments being conducted on the College Farm, the opportunities for doing research work in this line are unequalled.

2. Animal Breeding, including special work along new and original lines pertaining to principles underlying Animal Breeding.

3. Study of Breeds. With not only typical specimens, but also, in most cases, complete breeding herds of almost every recognized breed of live stock on the continent, the post graduate student is offered unexcelled opportunity for studying breeds adapted to Iowa conditions.

4. Stock Judging. For this work, all the various market types of animals and good representatives of pure breeds are available. These are carefully studied on foot, then slaughtered for a block test and the exact percentages and values of various cuts determined.

5. Practical Management of Stock. A study and investigation of methods employed on best managed stock farms and breeding establishments in the United States, Canada, Great Britain, and other countries, thus preparing students to manage stock farms.

DEPARTMENT OF HORTICULTURE AND FORESTRY.

S. A. BEACH, PROFESSOR.
A. T. ERWIN, ASSOCIATE PROFESSOR.
H. P. BAKER, ASSOCIATE PROFESSOR IN CHARGE OF FORESTRY.
V. R. GARDNER, INSTRUCTOR.

The department of Horticulture and Forestry with its orchards, plantations of small fruits and vegetables, forest garden, forest area, pomological and forestal museum, greenhouses, laboratories and library, affords excellent opportunities for instruction and research.

A large part of the library of the Department is kept in its offices in Agricultural Hall where it is available to students specializing in this line of work. Besides a fairly complete collection of publications pertaining to horticulture and forestry and files of numerous periodicals it also includes the complete library of Charles Downing containing his original drawings and manuscripts and many rare and valuable works on horticulture and forestry.

About 100 acres of land are now available for horticultural and forestal purposes including a recently added tract of 60 acres which has not yet been developed. Besides this the campus of more than 100 acres affords opportunities for instruction concerning ornamental trees and plants and landscape design.

Orchards ranging in age from two years to fifteen years contain representatives of the hardiest types of cultivated fruits both native and foreign and include over a thousand varieties. Several thousand seedling varieties which have been originated in the work in plant breeding are being tested in the orchards and nurseries. Various methods of stratification, layering, budding, grafting and other operations with plants are given practical illustration in the greenhouses and nurseries. Annual variety tests with leading types of vegetables afford opportunity for study along this line of work.

The past few years have witnessed a wonderful development in the science of Forestry due in large part to the increasing scarcity of timber so necessary in the development of every state and community. Large manufacturers and lumbermen are turning to practical forestry as a means of insuring the permanency of their industries. This is causing an increasing demand for trained men to manage our existing forests, provide for future crops, and reclaim barren non-agricultural lands by tree planting. The Government Forest Service calls for a number of college graduates each year and trains them in scientific forestry work. To meet these numerous demands for men, several colleges and universities including this one, are giving courses of instruction in Forestry.

The questions that are of greatest importance in the development of forestry in Iowa are the formation, care and harvesting of the farm grove and woodlot and the prevention of stream erosion by tree planting, hence special attention is paid to these problems. Although Iowa is classed as a prairie state yet there are excellent opportunities for the practical study of forestry in many parts of the state. There are several planted groves and considerable timber upon and near the college campus.

The museum of the department contains a large collection of woods native to this country, tropical America and the Philippine Islands which afford the student ample opportunity for becoming acquainted with the structure and gross appearance of the principal commercial timbers on the markets of this country.

WINTER SHORT COURSE IN HORTICULTURE AND FORESTRY.

(December 30, 1907, to January 11, 1908).

The Department of Horticulture and Forestry offers a winter short course which is designed especially to meet the needs of men who have not the opportunity to take a complete course. Special courses in Grain Judging and in Stock Judging will be given at the same time and the schedule will be so arranged that any two lines of work may be taken. One fee will cover the tuition either in Horticulture and Stock

Judging or in Horticulture and Grain Judging. Instruction will be given by members of the Department Staff, assisted by practical nurserymen and fruit growers and by one or more expert Horticulturists from other institutions.

Instruction will be given in up-to-date methods of combating insects and diseases of the orchard and garden and in the operation of various kinds of spraying apparatus from hand pumps to gasoline power machines. Other subjects which will be studied are the harvesting and storage of apples, especially the handling of apples in cold storage; varieties best adapted to the various sections of the state both for home use and commercial planting; pruning and other practical topics pertaining to orchard management; propagation of plants including grafting, layering, budding and the growing of cuttings; management of farm woodlots and planted groves; most profitable trees to plant; treatment of posts to prevent decay; and the laying out and ornamental planting of home grounds.

The College campus affords excellent opportunity for studying the different varieties of deciduous trees, evergreens, and other ornamentals. Leading varieties of orchard fruits and potatoes from different sections of the state will be supplied for exhibition and laboratory use.

COURSE IN HORTICULTURE AND FORESTRY.

For Freshman year, see Course in Agriculture, page 58. All Agricultural students will take the same work until the beginning of the Sophomore year.

Sophomore Year.

FIRST SEMESTER.

Orcharding, 3	(Horticulture III.)
Farm Engineering, 3	(Agronomy XXX.)
Soil Physics, 5	(Agronomy L.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXI.)
Outlines of Economics, 3	(Economic Science IX.)
Military,	(Military III.)

SECOND SEMESTER.

Elementary Forestry, 3	(Horticulture XIV.)
Vegetable Physiology, 3	(Botany XI.)
Systematic Botany, 3	(Botany XV.)

Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXIII.)
Argumentation, 2	(English XII.)
Agricultural Economics, 3 or	(Economic Science X.)
French Revolution and XIXth Century, 3	(French Revolution VI.)
Military,	(Military IV.)

Junior Year.

FIRST SEMESTER.

(Required)

Advanced Pomology, 2	(Horticulture V.)
General Entomology, 5	(Zoology IV.)
Agricultural Analysis, 4	(Agricultural Chemistry XXV.)

(Electives)

In addition to the required studies, the student will select from the from the list of electives on page 99, enough work to make a total of to twenty hours per week.

Students entering Junior in the fall of 1907 will take Soil Physics, Agronomy L, five hours in addition to the above outlined course.

SECOND SEMESTER.

(Required)

Literature of Horticulture, 2	(Horticulture X.)
Greenhouse and Nursery Practice, 2	(Horticulture VII.)
Silviculture, 3	(Horticulture XV.)
Spraying Apparatus, 1	(Agronomy XXVIII.)
Soil Fertility, 5	(Agronomy LI.)

(Electives)

In addition to the required studies, the student will select from the from the list of electives on page 100, enough work to make a total of to twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required)

Landscape Gardening, 3	(Horticulture VIII.)
Research Work, 2	(Horticulture IX.)
Economic Entomology, 5	(Zoology IX.)*

---

*Students who have had Zoology I take three instead of five hours.

Vegetable Pathology, 3 or 5	(Botany V.)

(Electives)

In addition to the required studies, the student will select from the from the list of electives on page 99, enough work to make a total of to twenty hours per week.

SECOND SEMESTER.

(Required)

Plant Breeding, 3	(Horticulture IV.)
Thesis, 2	(Horticulture XIII.)
Forest Management and Policy, 3	(Horticulture XVI.)
Plant Embryogeny, 1	(Botany XXIV.)
General Bacteriology, 4	(Botany XXX.)

(Electives)

In addition to the required studies, the student will select from the from the list of electives on page 100, enough work to make a total of to twenty hours per week.

COURSES IN HORTICULTURE.

I. Home and Market Gardening. Required the first semester of the Freshman year in the Agricultural courses. A study of small fruits and vegetables, the principles of culture, methods of harvesting and and vegetables, the principles of cclture, methods of harvesting and marketing, and practical details of home and market gardening. Recitations, two hours per week.

II. Plant Propagation. Required second semester Freshman year in the Agricultural course. Propagation of plants by sexual and non-sexual methods; germination, testing and storage of seeds, multiplication of plants by cuttage, layerage and graftage, including both greenhouse and nursery types. Three hours credit. Recitations, two hours and laboratory, two hours per week. Fee, $1.00.

III. Orcharding. Required first semester Sophomore year in all Agricultural courses. The establishment and care of home orchards and vineyards; systematic study of varieties adapted for planting in Iowa. Three hours credit. Recitations, two hours and laboratory two hours per week. Fee, $1.00.

IV. Plant Breeding. Required second semester Senior year in Horticulture and Science and Agriculture, elective second semester Junior or Senior year in all other Agricultural courses. Study of the principles of plant breeding and their application to the improvement of horticultural varieties. Plant Embryogeny, Botany XXIV, prerequisite or required with this course. Recitations, three hours per week.

V. Advanced Pomology. Required first semester Junior year in Horticulture, elective first semester Junior or Senior year in all other Agricultural courses. Commercial orcharding; grading, storing and marketing fruit; fruit judging; orchard and nursery technique. Prerequisite Horticulture III. Two hours credit. Recitation, one hour and laboratory, two hours per week. Fee, $1.00.

VII. Greenhouse and Nursery Practice. Required second semester, Junior year in Horticulture, elective Junior or Senior year in all other Agricultural courses. Construction, heating and management of greenhouses; forcing vegetables; propagation and care of green house and nursery plants. Two hours credit. Recitation, one hour and laboratory, two hours per week.

VIII. Landscape Gardening. Required first semester Senior year in Horticulture and Science and Agriculture, elective first semester Junior or Senior year in all other Agricultural courses, and elective first semester Junior or Senior year in Science courses. A study of the principles involved in the planting and decoration of home grounds and parks; ornamentals adapted to planting in Iowa. The ornamental trees and shrubs on the Campus and in the department afford excellent material for laboratory work. Three hours credit. Recitations, two hours and laboratory two hours per week.

IX. Research Work. Required first semester Senior year in Horticulture, elective first semester Junior or Senior year in all other Agricultural courses. An independent investigation of some line of work under the supervision of the head of the department. Two hours credit. Two hours per week.

X. Literature of Horticulture. Required second semester Junior year in Horticulture. Notable horticultural workers, their contributions to American and European horticulture and horticultural literature. Recitations, two hours per week.

XI. Floriculture. Required first semester Junior year in Domestic Science, elective in Science and in General and Domestic Science first semester Junior or Senior year. No course prerequisite. Propagation and general management of house plants and ornamentals for the home grounds. Recitations, two hours per week.

XIII. Thesis. Required second semester Senior year in Horticulture. The subject chosen must be one requiring independent investigation, the results of which are to be presented in a carefully written report. May be a continuation of Course IX. Two hours credit.

COURSES IN FORESTRY.

XIV. Elementary Forestry. Required second semester Sophomore year in Horticulture, Agronomy, Science and Agriculture, elective second semester Junior or Senior year in all other Agricultural courses. includes life history of a tree; forest influences; distribution of trees in the United States; tree planting in Iowa; growth and care of windbreaks and farm woodlots; structure and uses of common timbers with methods of artificial preservation. Prerequisite, Horticulture II. Three hours credit. Recitations, two hours and field work, three hours per week.

XV. Silviculture. Required second semester Junior year in Horticulture, Science and Agriculture elective second semester Junior or Senior year in all Agricultural courses. Distribution and character of native forests, factors of tree growth; collection, storage and germination of seed; species to plant; methods of planting with reference to Iowa conditions; protection of forests against natural enemies; determination of contents of single trees and whole forests; rate of growth and other forest measurements. Three hours credit. Two lectures and three hours field work required in connection with lectures.

XVI. Forest Management and Policy. Required second semester Senior in Horticulture. Methods of reproduction, thinning and final cutting of forests; practical studies of Iowa farm woodlots; valuation of forest crops; identification and uses of commercial timbers; attitude of nations toward forests. Relations of Forestry to Irrigation and work of the Government Forest Service. Three hours credit.

XVII. Wood Technology. Elective second semester Senior year in Mechanical, Civil and Mining Engineering and elective second semester Junior or Senior year in all Agricultural courses. A study of common woods, their structure, identification, use, decay and methods of preservation. Three hours credit. Recitations, two hours and field work, two hours per week. Fee, $1.00.

XVIII. Forest Utilization. Elective second semester Junior or Senior year in all Agricultural courses. Methods of logging and conversion of timber into finished products. Economic relation of timber to manufacturing industries. Prerequisites, Horticulture XIV, XV and XVI. Two hours credit.

Graduate Work in Horticulture and Forestry.

Advanced work in Horticulture along the lines indicated in the under-graduate courses is open to properly qualified students. Special facilities are offered for the study of problems bearing upon pomology, the breeding and propagation of plants and the storage of fruits.

In Forestry, opportunity is offered for special investigation of tree planting under prairie conditions, including the prevention of erosion and the reclamation of flood damaged lands by tree planting.

SCIENCE AND AGRICULTURE.

The field of Agriculture presents such rapid changes and there is such wide and varied demand for young men combining agricultural and scientific training that it has been deemed advisable to offer a course less technical than the other agricultural courses that relate directly to some special line.

The course in Science and Agriculture is designed to meet the demands of country agricultural high schools and other institutions, public and private, established for the purpose of giving instruction in the general sciences and elementary instruction in agriculture. There will doubtless arise a large demand for strong, broadly educated, well trained teachers for this and other kinds of agricultural instruction in public and preparatory schools where the work is now being introduced.

A new phase of agricultural education has developed in recent years in the various forms of agricultural extension work. This movement is destined to be far reaching in its results and it is clearly one of the most potent influences in the field of agriculture. This phase of agricultural instruction, which is bringing science to the aid of agriculture by reaching the man in the field and on the farm, the children in the public school and the family in the home, is calling for well trained men far in excess of the supply.

For Freshman year, see Course in Agriculture, page 58. All Agricultural students will take the same work until the beginning of the Sophomore year.

Sophomore Year.

FIRST SEMESTER.

Orcharding, 3	(Horticulture III.)
Farm Engineering, 3	(Agronomy XXX.)

Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXI.)
Physiography, 3	(Geology I.)
Outlines of Economics, 3	(Economic Science IX.)
Argumentation, 2	(English XII.)
Military,	(Military III.)

SECOND SEMESTER.

Elementary Forestry, 3	(Horticulture XIV.)
Vegetable Histology, 4	(Botany III.)
Systematic Phanerogams, 3 to 5	(Botany XV.)
Elementary Experimental Chemistry, 5	(Agricultural Chemistry XXIII.)
Agricultural Economics, 3 or	(Economic Science X.)
French Revolution and XIXth Century, 3	(History VI.)
Military	(Military IV.)

Junior Year.

FIRST SEMESTER.

(Required)

Agricultural Analysis, 4	(Agricultural Chemistry XXV.)
Soil Physics, 5	(Agronomy L.)

In addition to the above required studies, the student will select from the list of electives on page 99, enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Silviculture, 3	(Horticulture XV.)
General Bacteriology, 4	(Botany XXX.)
Soil Fertility, 5	(Agronomy LI.)

(Electives)

In addition to the above required studies, the student will select list of electives on page 99 enough work to make a total of from sixteen to twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required)

Landscape Gardening, 3	(Horticulture VIII.)
Vegetable Pathology, 3 or 5	(Botany V.)

Animal Nutrition and Packing House By-Products, 2 (Animal Husbandry IX.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 99 enough work to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Vegetable Physiology, 3	(Botany XI.)
Plant Embryogeny, 1	(Botany XXIV.)
Plant Breeding, 3	(Horticulture IV.)

(Electives)

In addition to the above required studies, the student will select from the list of electives on page 100 enough work to make a total of from sixteen to twenty hours per week.

DEPARTMENT OF AGRICULTURAL JOURNALISM.

L. E. CARTER, INSTRUCTOR.

Courses in Agricultural Journalism.

I. Agricultural Journalism. Elective first semester Junior or Senior year in all Agricultural courses. Includes study of the preparation of manuscripts for the press, relation of the contributor to the editor. Beginning with a sketch of the evolution and development, literary and mechanic, of the American Press from its earliest day, the lectures cover such subjects as "The Daily, Weekly and Agricultural Press," "Editor's Point of View," "Originality in Writing," and many other closely connected subjects. Also includes instruction in correcting proof and in mailing and offering manuscript. Students are required to write two articles each month. These are corrected, and the errors and suitably to subject are pointed out. The best of the manuscripts are sent to the leading farm journals of America and are often accepted and published. Recitation, one hour per week.

II. Agricultural Journalism. Elective second semester Junior or Senior year in all Agricultural courses. Continuation of Course I. One article is prepared by each student weekly. These are corrected, the criticisms being given to the individual writer and to the class. Lectures on various phases of the work are given during the term. In connection with this work, Mr. C. A. Shamel of Chicago has inaugurated a competition whereby students shall write an article on some agricultural subject at the close of this course. Mr. Shamel gives to the College a trophy upon which is to be inscribed the name of the winner in this competition. This has given increased interest in the work to the students in Journalism. Recitation, one hour per week.

ELECTIVES IN THE AGRICULTURAL COURSES.

Subjects which may be elected in the Junior or Senior year in any of the Agricultural courses, provided the student has the prerequisites for each study chosen.

FIRST SEMESTER.

Agricultural Analysis, 4	(Agricultural Chemistry XXVII.)
Dairy Chemistry, 4	(Agricultural Chemistry XL.)
Agricultural Journalism, 1	(Agricultural Journalism I.)
Farm Management, 3	(Agronomy VIII.)
Advanced Corn Judging, 2	(Agronomy XI.)
Farm Implement Design, 3	(Agronomy XXIV.)
Farm Blacksmithing and Horseshoeing, 2	(Agronomy XXVII.)
Advanced Soil Fertility, 2	(Agronomy LV.)
Principles of Breeding, 2	(Animal Husbandry VIII.)
Animal Nutrition and Packing House By-Products, 2	(Animal Husbandry IX.)
Live Stock Management, 2	(Animal Husbandry XI.)
Poultry Judging, 3	(Animal Husbandry XXX.)
Advanced Practice in Feeding and Management, 1	(Animal Husbandry XXXII.)
Crytogamic Botany, 5	(Botany IV.)
Vegetable Pathology, 3 or 5	(Botany V.)
Advanced Non-vascular Crytogams, 3	(Botany VI.)
Economic Botany, 2	(Botany X.)
Agrostology, 2	(Botany XIII.)
Evolution of Plants, 2	(Botany XIX.)
Surveying, 4	(Civil Engineering VIII.)
Advanced Butter Making, 4	(Dairying XIV.)
Dairy Bacteriology, 4	(Dairying XVII.)
Economic Problems, 3	(Economic Science III.)
American Labor, 2	(Economic Science VII.)
Outlines of Economics, 3	(Economic Science IX.)
Debating, 1	(English VII.)

Physiography, 3	(Geology I.)
General Geology, 5	(Geology II.)
National Development, 1815-1850, 3	(History III.)
Europe in the XVIth, XVIIth and XVIII Centuries, 3	(History V.)
The Rennaissance, 2	(History X.)
Diplomatic History of the United States, 2	(History XII.)
Advanced Pomology, 2	(Horticulture V.)
Landscape Gardening, 3	(Horticulture VIII.)
Research Work, 2	(Horticulture IX.)
French, 5 or	(Language I or III.)
German, 5 or	(Language V. or VII.)
Spanish, 5	(Language XXX or XXXII.)
English Drama, 3	(Literature I.)
American Literature, 3	(Literature IV.)
The Short Story, 2	(Literature VI.)
The Drama in Translation, 2	(Literature VIII.)
Plane Analytic Geometry, 5	(Mathematics VIII.)
Trigonometry, 1	(Mathematics XXI.)
Plane Analytic Geometry, 1	(Mathematics XXIV.)
Military Science, 1	(Military V. or VII.)
*Theory and Practice of Photography, 2	(Physics IX.)
Psychology, 5	(Psychology I.)
Interpretation, 2	(Public Speaking III.)
Dramatic Art, 2 or	(Public Speaking V.)
Extempore Speech, 2	(Public Speaking X.)
Comparative Physiology, 2	(Veterinary XXIII.)
Histology, 3	(Veterinary XXXIII.)
General Zoology, 5	(Zoology II.)
General Entomology, 5	(Zoology IV.)
Embryology, 3 to 5	(Zoology V.)
Economic Entomology, 3 to 5	(Zoology IX.)

SECOND SEMESTER.

Agricultural Analysis, 4	(Agricultural Chemistry XXVI.)
Advanced Agricultural Analysis, 4	(Agricultural Chemistry XXXIV.)
Agricultural Journalism, 1	(Agricultural Journalism II.)
Rural Architecture, 3	(Agronomy XXV.)

---

*Elective upon recommendation by the head of the department in which the student is taking major work.

Dairy Engineering, 2	(Agronomy XXVI.)
Spraying Apparatus, 1	(Agronomy XXVIII.)
Farm Machinery and Farm Motors, 3	(Agronomy XXXI.)
Advanced Soil Physics, 2	(Agronomy LIV.)
Investigation of Special Soils, 2	(Agronomy LVI.)
Soil Bacteriology, 3	(Agronomy LVII.)
Soil Seminar, 1 (Required with Agronomy LIV to LVII)	(Agronomy LVIII.)
Herd Book Study, 2	(Animal Husbandry, VII.)
Live Stock Management, 2	(Animal Husbandry XII.)
Poultry Houses, Feeding and Management, 3	(Animal Husbandry XXXI.)
Poultry Incubator Practice, 1	(Animal Husbandry XXXIII.)
Vegetable Histology, 4	(Botany III.)
Vegetable Physiology, 3	(Botany XI.)
Vegetable Cytology, 4	(Botany XII.)
Systematic Phanerogams, 3 to 5	(Botany XV.)
Plant Embryogeny, 1 (with Horticulture IV 3)	(Botany XXIV.)
Microscopic Examination of Foods, 2	(Botany XXV.)
General Bacteriology, 4	(Botany XXX.)
Advanced General Bacteriology, 4	(Botany XXXVI.)
Surveying, 4	(Civil Engineering IX.)
Roads and Pavements, 2	(Civil Engineering XIII.)
Rural Law, 1	(Civics V.)
Cheese Making, 2	(Dairying XV.)
Technology of Milk, 1	(Dairying XVI.)
Money and Banking, 2	(Economic Science IV.)
Finance, 3	(Economic Science V.)
Industrial History of the United States, 2	(Economic Science VI.)
Agricultural Economics, 3	(Economic Science X.)
Debating, 1	(English VIII.)
Advanced Geology, 5	(Geology IV.)
Division and Reunion, 1850-1876, 3	(History IV.)
French Revolution and XIXth Century, 3	(History VI.)
The Far Eastern Question, 2	(History IX.)
Constitutional History of England, 2	(History XI.)
Plant Breeding, 3	Horticulture IV.)
Greenhouse and Nursery Practice, 2	(Horticulture VII.)
Elementary Forestry, 3	(Horticulture XIV.)
Silviculture, 3	(Horticulture XV.)
Wood Technology, 3	(Horticulture XVII.)

Forest Utilization, 2	(Horticulture XVIII.)
French, 5 or	(Language II or IV.)
German, 5 or	(Language VI or VIII.)
Spanish, 5	(Language XXXI or XXXIII.)
Epic and Lyric Poetry, 5	(Literature II.)
Novel and Romance, 3	(Literature III.)
The Essay, 2	(Literature VII.)
Plane Trigonometry, 3	(Mathematics VIb.)
Differential and Integral Calculus, 5	(Mathematics IX.)
Trigonometry, 2	(Mathematics XXII.)
Analytic Geometry, 3	(Mathematics XXIII.)
Calculus, 4	(Mathematics XXVI.)
Military Science, 1	(Military VI or VIII.)
Ethics, 3	(Psychology II.)
Advanced Psychology, 3	(Psychology III.)
Advanced Interpretation, 2	(Public Speaking IV.)
Advanced Dramatic Art, 2 or	(Public Speaking VI.)
Advanced Extempore Speech, 2	(Public Speaking XI.)
Advanced Public Speech, 1	(Public Speaking VIII.)
Comparative Physiology, 2	(Veterinary XXII.)
Comparative Physiology, 2	(Veterinary XXIV.)
General Zoology, 5	(Zoology III.)
Evolution of Animals, 1	(Zoology VI.)

Remunerative and Instructive Labor.

The Agricultural courses afford opportunity to do considerable work in the fields and about the barns and grounds. The compensation for services of this kind ranges from eight to fifteen cents per hour according to the merit of the work. Thus students are enabled not only to earn part of their expenses but also to materially strengthen the practical side of their education. A number of the strongest and most capable students are aided in finding employment during vacations with successful stockmen on good farms and in various other positions in line with their chosen work. Some who have taken a year of practical work in this way during their course, have found it of marked benefit and it has enabled them to command more desirable and remunerative positions at the completion of their College course. Too much emphasis cannot be placed on a thorough understanding of the practical application of correct principles of agriculture.

Credits for Practical Work.

Agricultural students who, by previous agreement with the head of the department, do practical work on farms, horticultural or feeding or breeding establishments, beet sugar factories or forestry reservations, of recognized standing, during their course of study will be allowed credits on the following basis: Students who take practical work of the kind described under the direction of the proprietor and render competent and faithful service, will, on their return to College and on the presentation of a concise written report or resume of their observations and experience, be entitled to the following credits in the four year courses in Agriculture:

For three months, five hours of elective work in the Junior or Senior year; for six months, eight hours; and for one year, ten hours; no more than five hours of which shall be credited in any one term of the College course.

Special Courses.

Students desiring courses shorter than the regular four year courses are permitted to take up special courses in accordance with the general regulations governing such work and subject to the approval of the Dean of Agriculture and the President of the College.

Such courses may cover a period of one semester, one year or two years, but special students are advised to take not less than one year's work in any chosen branch and in all cases where practicable or possible to do so, students are urged to complete the four years' course. The results will justify the time and expense required and modern agriculture demands thorough training, special fitness, and a high order of ability. No degrees are granted for less than four years' course.

Department of Agriculture Scholarships.

The State Department of Agriculture offers scholarship prizes of $200.00, $100.00 and $25.00, open to young men of the state not enrolled as a regular or special student in any agricultural college, without barring the students of the special short courses in January. These scholarship prizes are awarded for the best judging live stock and corn annually at the state fair in accordance with the rules and conditions prescribed by the state department of agriculture governing the contest. These afford opportunities for young men to receive substantial aid toward paying the expenses of a college education, and some excellent students have come to the institution by means of these scholarships.

AGRICULTURAL EXPERIMENT STATION

AGRICULTURAL EXPERIMENT STATION

CHARLES F. CURTISS, DIRECTOR.

The investigations of the Experiment Station are intimately related to the college work of instruction, as the problems occupying the attention of the Station are those that have a material bearing on the profit of the farm, and they are also those that are timely and in need of accurate investigation. Whether relating to the field, the feed lot or the laboratory, the aim is to investigate those questions which will have a practical relation to successful agriculture. Originality is made a feature of the work so far as is consistent with useful results, and in all instances the sole object is to throw light on the truth relating to the various principles and practices of the farm. The field work strongly supports the instruction of the College in regard to the varieties of grains and the methods of cultivation, thus enabling the student to become acquainted with the latest ideas relating to these. Tests are made of different varieties of fodders, grasses and grains, also of different systems of culture and various crops.

The experimental investigations with animals embrace a study of the value of different feeds for different features of animal production, the preparation of feeds, systems of feeding, also a study of different types of animals suitable for the requirements of the market. The object sought in this department of Station work is to indicate the manner in which the Iowa farmer through the employment of animals can realize the most from his farm products and add to the fertility of the farm. The Experiment Station has reached out in this way to a remarkable degree, bringing sheep from Mexico, Colorado and Scotland, cattle from Texas and Great Britain, horses from Wyoming, Montana and Europe, in its endeavor to thoroughly study this very important feature of the farmer's work. The data from these experiments is always accessible to the student who has the opportunity of observing daily the development of it at every stage.

The work of the Experiment Station is in the closest touch with the Dairy industry. The problems which practical men are constantly confronting and asking aid in solving are at all times objects of experimentation by the Dairy Section. The students not only see but assist in carrying out these experiments. In this way they become acquainted not only with the problems to be solved but with the methods employed in the investigations. This experimental work relates to the various problems of both butter and cheese making. The results of this work together with those of the bacteriological investigations are daily used in class work.

The experimental work in Horticulture also affords the student an opportunity to study the results of the theory of the class room as practiced in the field. The connection of the Department of Horticulture with the State Horticultural Society is such that problems touching the commercial side of fruit growing receive the closest attention. Experiments are conducted in spraying for the prevention of fungus pests and injurious insects; also in fertilizing, pruning, and thinning; in nursery work and in plant breeding. The Station work thus equips the student with the practice and technique necessary to a thorough horticultural training.

The work of the Experiment Station has been increased by the Addition of Forestry as a line of investigation. Methods of practical treatment of fence posts and other timbers to increase durability are being determined in co-operation with the United States Forest Service and farmers and stock men throughout the state. The adaptability of various trees for different sections of the state and methods of germination and storage are being tested. To get more definite data in reference to germination of seed and growth of seedlings in nursery rows, tree seed has been distributed to farmers in twenty-five counties of the state.

A 200 acre dairy farm is being stocked and equipped for experimental and educational work in this important line of work. This farm and its equipment will afford excellent facilities for experimental work in the farm production side of the dairy industry. A poultry department is also being added for experimental and instruction work.

AGRICULTURAL EXTENSION

AGRICULTURAL EXTENSION

P. G. HOLDEN, SUPERINTENDENT.

(Extract from the records of the thirty-first general assembly.)
Be It Enacted By The General Assembly Of The State Of Iowa:

Section I.

Agricultural Extension Work:

That the Iowa State College of Agriculture and Mechanic Arts is hereby authorized to establish a system of Agricultural Extension work. Under this system the said college shall be authorized to conduct experiments in the various portions of the state and in giving instructions wherever, in the judgment of the college authorities, it shall be advisable, in reference to the various lines of agricultural work maintained upon the college grounds at Ames, Iowa.

The college authorities are authorized to give instruction in corn and stock judging at agricultural fairs, institutes and clubs, and to aid in conducting short courses of instruction at suitable places throughout the state; to give lectures and demonstrations on the growing of crops and fruits, on stock raising, dairying, land drainage and kindred subjects, including domestic science. This work shall be so planned as, in the judgment of the college authorities, is best calculated to carry to the communities remote from the college the benefits of the skilled instruction given by the teachers of said college and the results reached in the work of the experiment station.

DIVISION OF VETERINARY MEDICINE

DIVISION OE VETERINARY MEDICINE

JOHN H. McNEIL, Dean and Professor.
WALTER A. STUHR, Associate Professor.
LESLIE M. HURT, Assistant Professor.
R. R. DYKSTRA, Assistant Professor.
W. E. HARRIMAN, Professor.
M. STALKER, GEORGE JUDISCH and I. J. SCOTT, Lecturers.

The Division of Veterinary Medicine offers a four year course of nine months each. The former curriculum has been revised and enlarged and a course in stock judging and animal nutrition from the department of Animal Husbandry added. This new and longer course has met with general approval as is shown by the increased attendance in face of the advanced entrance requirements and increased length of course of study.

The Veterinary Division occupies the third floor of Agricultural Hall, where offices, lecture rooms and museums are located. The Veterinary hospital is a substantial three story brick building, fitted with commodious, well lighted single and box stalls, operating room, office and pharmacy, resident surgeon's room, dissecting room, an elevator for the accommodation of the patients unable to use the runway to second floor, and is furnished with all the surgical instruments of modern construction, operating table and other important conveniences for hospital work. A number of fine grass paddocks directly adjacent to the hospital are used for such patients as are likely to be benefited by out-door exercise and a grass diet in the season.

The Veterinary Hospital and the daily free clinics furnish an abundance of material for practical work. Situated in an extensive stock growing district, the College is especially favored in this respect, not only horses, but all species of animals, being brought to the hospital for treatment. Senior students are assigned cases for diagnosis and treatment under the supervision of the clinical professor, thus having an opportunity to apply the theoretical knowledge obtained in the class room. During the course opportunity is offered to witness all the different operations performed in veterinary surgery, together with the methods of treating the different internal diseases.

Junior students are detailed in alphabetical order to assist the pharmacist in the compounding of prescriptions, in this way becoming familiar with the various forms in which medicines are administered.

Specially equipped laboratories afford excellent opportunity for the study of anatomy, pharmacy, bacteriology, histology, pathology, and the related sciences.

A laboratory intended for the purpose of bacteriological and pathological investigation of the diseases of domestic animals has recently been equipped as a part of the Experiment Station. It is supplied with the most modern biological apparatus, such as high power microscopes, incubators, hot air and steam sterilizers, microtomes, stains, gas, water and electric light, and in fact all first class facilities for scientific investigation. Specimens are received frequently for examination.

Students also have the advantages of a very extensive library where access may be had at all times to such journals, magazines, experiment station bulletins, and other literature as they may desire for reference in their study. The Veterinary Division occupies the third floor of Agricultural Hall where offices, lecture rooms and museum are located. The Veterinary Hospital is a three story brick building, conveniently located, and well equipped for conducting clinical as well as general hospital work. The College being located in a rich stock growing section of the country, is supplied with an abundance of clinical material for daily demonstration at the hospital.

Aside from the facilities which belong especially to the Veterinary Division, the equipment for instruction in Animal Husbandry, consisting of large flocks and herds of carefully selected breeds of live stock helps to render practical instruction very efficient.

The work in Botany, Chemistry, Zoology and other related sciences is adequately provided for in the special buildings for the accommodation of these several departments of college work.

Requirements For Admission.

Candidates having a college degree, a teacher's first grade certificate, diploma from an accredited high school or those who have passed successfully the matriculate examination of a recognized college will be admitted without examination.

Graduates from recognized schools of Veterinary Science, Agriculture, Medicine, Dentistry, or Pharmacy will be given credit for work pertaining to the course, upon the presentation to the faculty of satisfactory standing or upon passing an entrance examination.

Examinations and Degree.

Examinations are held at the close of each term upon the work passed over during that semester. At the end of each year the final examinations are held. Students must have passed examinations in all prerequisite work of a given semester or year before they can proceed with the work of the succeeding Semester or year. These examinations are controlled by the faculty rules. At the close of the course after passing a satisfactory examination, the student receives the degree of Doctor of Veterinary Medicine (D. V. M.).

Candidates for graduation must be twenty-one years of age, of good character and must have passed examinations in all the required subjects in the course.

Field Open to Qualified Veterinarians.

The student having completed the course of instruction outlined in this curriculum becomes a veterinarian in the broadest sense and competent to enter a wide field of usefulness by any of the avenues enumerated.

A.—General Practice.—In view of the fact that the National live stock valuation is estimated at $3,200,000,000, it becomes obvious that the graduate possessing fitness and aptitude for this kind of work will meet with a ready demand and substantial compensation for his services.

B.—Bureau of Animal Industry.—Veterinarians are in demand for inspection work in the Bureau of Animal Industry, United States Department of Agriculture, at salaries ranging from $1,200.00 to $2,500.00.

C.—Army.—The Veterinarians in the United States Army now have a position similar to that of a commissioned officer. The salary is $1,500.00 per year with a ten per cent increase for each five years' service up to twenty years with the same allowances as a second lieutenant of cavalry.

These positions are most desirable and with our insular possessions give opportunities for wide experience in professional work.

D.—Animal Husbandry.—Qualified veterinarians are called upon to act as counsel to the breeder and as guardians to the vast live stock industry of the nation.

E.—Municipal and State Veterinarians.

F.—Veterinarians to stock farms and corporation stables.

G.—Veterinarians to Experiment Stations and Instructors in Veterinary Colleges.

Veterinary Medical Society.

The Veterinary Medical Society of the Iowa State College was organized by the students for the purpose of investigating and discussing subjects relating to Veterinary Science. All matriculate students of the four classes are members and the diploma of the society is conferred upon graduates.

All graduates of this school are also eligible to membership in the American Veterinary Medical Society.

COURSE IN VETERINARY MEDICINE.

Freshman Year.

FIRST SEMESTER.

Comparative Anatomy, 3	(Veterinary I.)
Dissection, 6	(Veterinary VI.)
Pharmacy, 3	(Veterinary XXV.)
(One laboratory period.)	
Structural Botany, 3	(Botany IX.)
(One laboratory period.)	
Elementary Inorganic Chemistry, 3	(Chemistry I.)
(One laboratory period.)	
Live Stock Management, 2	(Animal Husbandry XI.)
(One laboratory period.)	
Military Drill	(Military I.)

SECOND SEMESTER.

Comparative Anatomy, 3	(Veterinary II.)
Dissection, 6	(Veterinary VII.)
Comparative Physiology, 2	(Veterinary XXII.)
Poisonous Plants, 2	(Botany XVI.)
(One laboratory period.)	
General Chemistry, 3	(Chemistry, IV.)
(One laboratory period.)	
Live Stock Management, 2	(Animal Husbandry XII.)
Military Drill	(Military II.)

Sophomore Year.

FIRST SEMESTER.

Comparative Anatomy, 3	(Veterinary III.)
Dissection, 6	(Veterinary VIII.)

Comparative Physiology, 2	(Veterinary XXIII.)
Physical Diagnosis, 2	(Veterinary LIV.)
Materia Medica, 2	(Veterinary XXVII.)
Histology, 3 (One laboratory period.)	(Veterinary XXXIII.)
Market Types of Cattle and Sheep, 2 (Two 2 hour periods.)	(Animal Husbandry I.)
General and Vertebrate Zoology, 5 (Two laboratory periods.)	(Zoology XV.)
Elementary Organic Chemistry, 2	(Chemistry X.)
Military Drill,	(Military III.)

SECOND SEMESTER.

Comparative Anatomy, 3	(Veterinary IV.)
Dissection, 6	(Veterinary IX.)
Comparative Physiology, 2	(Veterinary XXIV.)
Histology, 3 (One laboratory period.)	(Veterinary XXXIV.)
Horse Shoeing, 2	(Veterinary XVI.)
Market Types of Dairy Cattle, Horses and Swine, 2 (Two 2 hour periods.)	(Animal Husbandry II.)
Physiological Chimestry, 3 (One laboratory period.)	(Chemistry XIII.)
Military Drill,	(Military IV.)

Junior Year.

FIRST SEMESTER.

Theory and Practice of Medicine, 3	(Veterinary XL.)
Principles and Practice of Surgery, 3	(Veterinary X.)
General Pathology, 3 (One laboratory period.)	(Veterinary XXXV.)
Clinics, 6	(Veterinary L.)
Breed Types of Cattle and Sheep, 4 (Two lectures and two judging periods.)	(Animal Husbandry III.)
Principles of Breeding, 2	(Animal Husbandry VIII.)
Animal Nutrition and Packing House By-Products, 2	(Animal Husbandry IX.)
Embryology, 3 (One laboratory period.)	(Zoology V.)
Bacteriology of the Pathogenes, 2 (One laboratory period.)	(Botany XXXI.)

SECOND SEMESTER.

Theory and Practice of Medicine, 3	(Veterinary XLI.)
Principles and Practice of Surgery, 3	(Veterinary XI.)
General Pathology, 3 (One laboratory period.)	(Veterinary XXXVI.)
Clinics, 6	(Veterinary LI.)
Therapeutics, 2	(Veterinary XXX.)
Breed Types of Dairy Cattle, Horses and Swine, 4 (Two lectures and two judging periods.)	(Animal Husbandry IV.)
Animal Parasites, 3 (One laboratory period.)	(Zoology VIII.)
Milk Testing and Milk Inspection, 2 (One laboratory period.)	(Dairying XIII.)

Senior Year.

FIRST SEMESTER.

Theory and Practice of Medicine, 3	(Veterinary XLII.)
Principles and Practice of Surgery, 3	(Veterinary XII.)
Special Pathology, 3	(Veterinary XXXVII.)
Clinics, 6	(Veterinary LII.)
Therapeutics, 2	(Veterinary XXXII.)
Operative Surgery, 5	(Veterinary XIV.)
Sanitary Science, 2	(Veterinary XLIV.)
Obstetrics, 1	(Veterinary XIX.)
Meat Inspection, 2	(Veterinary XXXIX.)

SECOND SEMESTER.

Theory and Practice of Medicine, 3	(Veterinary XLIII.)
Principles and Practice of Surgery, 3	(Veterinary XIII.)
Special Pathology, 3	(Veterinary XXXVIII.)
Clinics, 6	(Veterinary LIII.)
Operative Surgery, 5	(Veterinary XV.)
Sanitary Science, 2	(Veterinary XLV.)
Obstetrics, 1	(Veterinary XX.)
Hippology, 2	(Veterinary XLVII.)
Conformation and Soundness, 2	(Veterinary XVIII.)
Jurisprudence, 1	(Veterinary XLVIII.)
Ophthalmology, 1	(Veterinary XLIX.)

COURSES IN VETERINARY MEDICINE.

Comparative Anatomy.

Dr. Dykstra.

I. Comparative Anatomy. Required first semester Freshman year in Veterinary course. Three lectures per week.

II. Comparative Anatomy. Required second semester Freshman year in Veterinary course. Three lectures per week.

III Comparative Anatomy. Required first semester Sophomore year in Veterinary course. Three lectures per week.

IV. Comparative Anatomy. Required second semester Sophomore year in Veterinary course. Three lectures per week.

VI, VII, VIII and IX. Dissection. Required throughout the Freshman and Sophomore years in Veterinary course. Six hours per week.

The courses in Comparative Anatomy include both Descriptive and Comparative Anatomy. Descriptive Anatomy includes the study of bones, articulations, muscles, circulatory apparatus, and special sense organs. This work is given by lectures supplemented by demonstrations from mounted skeletons, prepared specimens, charts and an Auzoux clastic model.

Practical Anatomy includes a course in dissection. During each year the student makes two complete dissections of the horse and such parts of other animals as is deemed necessary. The first year's work is devoted to the study of bones, articulations and muscles; the second, to special dissection of the nervous system, circulatory apparatus, lymphatic glands, organs of special sense and the organs contained in the abdominal and thoracic cavities. Each student must properly dissect and pass an examination on the part assigned before starting the dissection and study of another part.

Principles and Practice of Surgery.

DR. MCNEIL.

X. Principles and Practice of Surgery. Required first semester Junior year in Veterinary course. Three lectures per week.

XI. Principles and Practice of Surgery. Required second semester Junior year in Veterinary course. Three lectures per week.

XII. Principles and Practice of Surgery. Required first semester Senior year in Veterinary course. Three lectures per week.

XIII. Principles and Practice of Surgery. Required second semester Senior year in Veterinary course. Three lectures per week.

General Surgery includes surgical bacteriology, the pathology and treatment of inflammation, diseases of the bones, nerves, muscles, articulations, tendons, tendon sheaths and bursæ; methods of amputation and exarticulation, suturing and the general treatment of wounds; methods of anæsthesia; intravenous, and sub-cutaneous injections; castration; methods of restraint in securing animals, and methods of actual cautery.

Special Surgery includes the surgical diseases of the head, neck, thorax, abdomen, urino-genital organs, fore-limb, hind-limb, vertebrae, pelvis, stomach and bowels.

Operative Surgery.

XIV. Operative Surgery. Required first semester Senior year in Veterinary course. Students perform all the operations necessary in veterinary practice. Five hours per week. Fee, $10.00.

XV. Operative Surgery. Required second semester Senior year in Veterinary course. Continuation of course XIV. Five hours per week.

Horse Shoeing.

XVI. Horse Shoeing. Required second semester Sophomore year in Veterinary course and second semester Senior year in Animal Husbandry course. Study of anatomy and physiology of foot, relation between form of foot and direction of limb, variation in flight of limb, style of going, shoeing of normal and irregular feet, winter shoeing, hoof nature, correction of defects in gait, and the methods of shoeing hoofs defective in form or diseased. Two lectures per week.

Conformation and Soundness.

XVIII. Conformation and Soundness. Required second semester Senior year in Veterinary and Animal Husbandry courses. Study of conformation of horse with special reference to defects which exist and predispose to pathological changes causing unsoundness, comparison of normal and diseased parts, and a systematic classification arranged to conform to parts involved. Lectures and practical demonstration upon the animal. Two hours per week.

Obstetrics.

DR. DYKSTRA.

XIX. Obstetrics. Required first semester Senior year in Veterinary and Animal Husbandry courses. Consists of physiological obstetrics; ovulation, oestrum, fecundation, sterility, gestation, and hygiene of pregnant animals, and parturition. Prerequisite, Zoology V. One hour per week.

XX. Obstetrics. Required second semester Senior year in Veterinary course. Consists of pathological obstetrics; the diseases and accidents of pregnancy, dystokia, obstetrical operations, the sequelæ of parturition, and diseases of the young animal. One lecture per week.

Comparative Physiology.

DR. HURT.

XXII. Comparative Physiology. Required second semester Freshman year in Veterinary and elective second semester Junior or Senior year in all Agricultural courses. A study of general physiology, dealing with the animal cell, the unit of organization, its origin, modification of form and structure, chemical constitution and the various chemical and physical laws which effect its nutrition, growth, reproduction and development. Two hours per week.

XXIII. Comparative Physiology. Required first semester Sophomore year in Veterinary, and elective first semester Junior or Senior year in all Agricultural courses. Deals with special functions of various organs and tissues of the body. Two recitations per week.

XXIV. Comparative Physiology. Required second semester Sophomore year in Veterinary and elective second semester Junior or Senior year in all Agricultural courses. Continuation of course XXIII, Recitations, two hours per week.

Physiology is taught by comparing vital phenomena of domestic animals with those of human beings. In all these courses, F. Smith's Manual of Veterinary Physiology is used as a text.

Pharmacy.

MR. JUDISCH.

XXV. Pharmacy. Required first semester Freshman year in Veterinary course. A study of all official drugs and preparations. Special attention is paid to practical pharmaceutical problems and manipulations, also to the principles and practical work in compounding prescriptions. Each student is required to prepare at least one of each class of official preparations. Credit three hours. Recitations, two hours, and laboratory three hours per week. Fee, $2.00.

XXVII. Materia Medica. Required first semester of Sophomore year in Veterinary course. This course is introduced by definitions and a discussion of composition of drugs, classification of official preparation, incompatibilities and classification of all drugs employed in the practice of Veterinary Therapeutics. Following this, each drug is taken up in order of its classification and discussed in general detail. Lectures, two hours per week.

Therapeutics.

DR. STUHR.

XXX. Therapeutics. Required second semester Junior year in Veterinary course. Same classification of drugs is used as in course XXVII. A study of modes of action of drugs, the physiological laws governing the same, the absorption, elimination and methods of administration, dosage, idiosyncrasy; also the physiological and therapeutic actions, indications and contra-indications, toxicology and treatment, modes of administration and dose of each therapeutic agent. Two lectures per week.

XXXII. Therapeutics. Required first semester Senior year in Veterinary course. Continuation of course XXX. Reference, Winslow's "Veterinary Materia Medica and Therapeutics" and other stand ard works. Two lectures per week.

Histology.

DR. STUHR.

Histology proper is preceded by a short course in Microscopy. This is designed to give the student a working knowledge of the microscope and microscopical methods, thus fitting him to study, to best advantage, the minute structure of tissues and organs.

XXXIII. Histology. Required first semester Sophomore year in Veterinary course, and elective first semester Junior year in Science and Junior or Senior year in all Agricultural courses. Treats of the cell as a unit of structure, of its functions, the tissues, their classification and characteristics. Credit three hours. Recitations two hours and laboratory, three hours per week. Fee, $2.00.

XXXIV. Histology. Required second semester Sophomore year in Veterinary course. Treats of the tissues in their relation to the structure of organs. Credit three hours. Recitations, two hours and laboratory three hours per week.

Pathology.

DR. STUHR.

XXXV. General Pathology. Required first semester Junior year in Veterinary course. Treats of causes of disease, its spread and generalization, protecting and healing forces, disturbances of circulation, retrograde disturbances of nutrition, and infiltration, hypertrophy and regeneration, inflammation and tumors; also the methods of preparation and preservation of gross specimens, preparation of sections for miscroscopic study, general technique of laboratory diagnosis. The student is then given preparations for the study of the various pathological phenomena as considered in class room. Recitations, two hours and laboratory, three hours per week. Fee, $2.00.

XXXVI. General Pathology. Required second semester Junior year in Veterinary course. Continuation of course XXXV. Recitations, two hours and laboratory, three hours per week.

XXXVII. Special Pathology. Required first semester Senior year in Veterinary course. Treats of the etiology and morbid anatomy of diseases caused by streptococci, bacilli, higher fungi, protozoa, animal parasites, and those infectious diseases, the specific cause of which is not yet determined. Recitations, three hours per week.

XXXVIII. Special Pathology. Required second semester Senior year in Veterinary course. Continuation of course XXXVII. Recitations, three hours per week.

Meat Inspection.

XXXIX. Meat Inspection. Required first semester of Senior year in Veterinary course. Includes the physical characteristics of normal flesh and organs; methods of slaughter; principles of refrigeration and preservation; effect of accidental and pathological conditions on the preservation and edibility of meats; putrefaction of meats and consequences of ingestion of such meats by man; effects upon the meat of various constitutional and infectious diseases; transmissibility of disease to man and effects of cooking on transmissibility; and the meat inspection laws of the United States. Two lectures per week.

Theory and Practice of Veterinary Medicine.

DR. MCNEIL.

XL. Theory and Practice of Veterinary Medicine. Required first semester Junior year in Veterinary course. Includes work on congestion, inflammation and fever, diseases of the respiratory system, circulatory system, blood and lymph, digestive apparatus, nervous system, genito-urinary system, eye and skin, and the non-infectious constitutional diseases. Three lectures per week supplemented by practice in daily clinics.

XLI. Theory and Practice of Veterinary Medicine. Required second semester Junior year in Veterinary course. Continuation of course XL. Three lectures per week.

XLII. Theory and Practice of Veterinary Medicine. Required first semester Senior year in Veterinary course. Continuation of Courses XL and XLI. Three lectures per week.

XLIII. Theory and Practice of Veterinary Medicine. Required second semester of Senior year in Veterinary course. Devoted to history, etiology, symptoms, lesions, differential diagnosis and treatment of the various diseases caused by animal parasites; also a review of the morphological and cultural characteristics of the specific organisms in connection with the symptoms and lesions which they produce. Three lectures per week.

Sanitary Science.

DR. HURT.

XLIV. Sanitary Science. Required first semester Senior year in Veterinary and Animal Husbandry courses. Consists of a consideration of health and disease; the etiology of disease, predisposing and exciting; means and manner of propagation and transmission of infectious diseases; general hygiene and stable sanitation, including ventilation, drainage, selection of site and materials for construction. Two lectures per week.

XLV. Sanitary Science. Required second semester Senior year in Veterinary and Dairy courses. A consideration of practical methods of disinfection, disinfecting agents both chemical and physical, methods of dipping and dips, principles of serum therapy, vaccination and quarantine; also sanitary police of the individual infectious and parasitic animal diseases. Two lectures per week.

Hippology.

XLVII. Hippology. Required second semester Senior year in Veterinary course. How to maintain the health and strength of the horse, including the framework of the horse from a mechanical standpoint, bits and bitting, saddling, draft and harness; care of animals in garrison and in field, including watering, feeding and grooming. Two lectures per week.

Jurisprudence.

MR. SCOTT.

XLVIII. Jurisprudence. Required second semester Senior year in Veterinary course. Consists of a study of rights and duties of the veterinary practitioner and of the owner of domestic animals; contracts and sales as applied to dealings in live stock; and the subject of expert testimony. One lecture per week.

Ophthamology.

DR. HARRIMAN.

XLIX. Ophthalmology. Required second semester Senior year in Veterinary course. Methods of examination and diagnosis in particular, as well as general principles and special forms of treatment. One lecture per week supplemented by demonstrations upon cases and models.

Clinics.

DRS. MCNEIL, HURT AND DYKSTRA.

L, LI, LII and LIII. Clinics. Required throughout the Junior and Senior years in Veterinary course. The practical work afforded by the clinics gives the student an opportunity to put his knowledge into practice and to acquire the aptitude requisite for his professional work. Free clinics are held at the hospital every day from 1 to 3 o'clock P. M. The cases brought to the hospital for treatment are assigned to the senior students who are required to prepare a full report of their examination, diagnosis, and proposed treatment, which are then graded by the clinician when he examines the case. The hospital cases are also treated and reported on by the senior students. The clinical professor, when examining a case, performing an operation, or administering internal treatment, discusses the various aspects of the case, thus giving the utmost good to the student. The junior students assist the seniors in their clinical and hospital work. The large number of animals of all species brought to the hospital afford the student an opportunity to acquire a familiarity with their treatment such as will enable them to give good service to clients immediately upon entrance into practice. Six hours per week during each semester.

Physical Diagnosis.

LIV. Physical Diagnosis. Required first semester Sophomore year in Veterinary course. Arts and methods of diagnosis first considered, then general examination of different apparatuses of the animal body, and finally specific examinations, including experimental inoculations as a means of diagnosis. Two lectures per week.

Anatomy of Domestic Animals.

LV. Anatomy of Domestic Animals. Required first semester, Senior year in Animal Husbandry course. Two hours credit.

TEXT AND REFERENCE BOOKS.

Dictionary.—Dorland and Gould.

Anatomy.—Chauveau's "Anatomy of the Domesticated Animals," McFadyean's "Comparative Anatomy," McFadyean's "Dissection Guide," Schmaltz's "Atlas der Anatomie de Pferdes."

Physiology.—F. Smith's "A Manual of Veterinary Physiology," "American Text Book of Physiology."

Histology.—Szymonowiez-MacCullum. Böhm-Davidoff-Huber.

Materia Medica.—"United States Dispensatory."

Pharmacy.—Remington's "Practice of Pharmacy."

Chemistry.—Bennett's "General Chemistry and Qualitative Analysis," Remsen's "Organic Chemistry," Bunge's "Physiological Chemistry."

Botany.—Atkinson's "Elementary Botany."

Therapeutics.—Winslow's "Veterinary Materia Medica and Therapeutics," "Arzneimittellehre für Tierärzte," by Fröhner, Veterinary Medicine, Dun.

General Pathology.—McFarland, Zeigler, Stengel. Comparative General Pathology, by Kitt.

Special Pathology.—Moore, Hayes' Translation of "Infective Diseases of Animals," by Friedberger and Fröhner.

Zoology.—Comstock and Kellogg's "Elements of Insect Anatomy," for beginners; none for advanced work.

Bacteriology.—Muir and Ritchie's "Manual of Bacteriology."

Animal Husbandry.—Craig's "Judging Live Stock."

Surgery.—Dollar's. Volume I., Operative Technique.

Surgery.—Dollar's. Volume II., General Surgery.

Surgery.—Dollar's. Volume III. Regional Surgery.
Williams' Surgical Operations.

Medicine.—Law's "Veterinary Medicine," Hayes' Translation of "Infective Diseases of Animals," by Friedberger and Fröhner.

Animal Husbandry.—Shaw's "Animal Breeding."

Embryology.—Foster and Balfour's "The Elements of Embryology." "An Introduction to Vertebrate Zoology," A. M. Reese.

Horseshoeing.—"A Text Book of Horseshoeing," by Lungwitz, translated by Adams. "Handbook of Horseshoeing," by Dollar.

Milk Inspection.—Farrington and Woll.

Obstetrics.—Fleming's "Veterinary Obstetrics," Bourney, "Obstetrique Veterinaire," Dalrymple's "Veterinary Obstetrics," De Bruin's "Bovine Obstetrics," translated by Wyman.

Animal Nutrition.—Jordan's "The Feeding of Animals," Henry's "Feeds and Feeding," Armsby's "Principles of Nutrition."

Conformation and Soundness.—Goubaux and Barrier's "Exterior of the Horse," translated by Harger; "Hayes' "Points of the Horse."

DIVISION OF ENGINEERING

DIVISION OF ENGINEERING

A. MARSTON, DEAN,
Professor of Civil Engineering.
G. W. BISSELL, VICE DEAN,
Professor of Mechanical Engineering.
L. B. SPINNEY,
Professor of Electrical Engineering and Physics.
S. W. BEYER,
Professor of Mining Engineering and Geology.

The work of the Division of Engineering of the College is apportioned among four departments, viz.:

The Department of Mechanical Engineering.
The Department of Civil Engineering.
The Department of Electrical Engineering.
The Department of Mining Engineering.

Through these departments the College offers systematic four year courses in Mechnical Engineering, Civil Engineering, Electrical Engineering, Mining Engineering, and Ceramics, also two year courses in Mining Engineering and Clay Working.

NEW COURSE IN CERAMICS.

At the instance of the Iowa Brick and Tile Manufacturers' Association, and of the Association of Iowa Cement Users, the last legislature passed a law establishing instruction and experimentation along these lines at the State College.

In obedience to the law a four year course of study in Ceramics is published in this catalogue, and the proper facilities for instruction and experimentation in the lines of cement and clay products have been provided.

Iowa has great undeveloped resources in these lines which offer an inviting and remunerative field for professional work. We already have calls from the largest cement company in the United States for graduates to take remunerative positions, and many excellent opportunities offer in the clay industries.

The Engineering Courses.

The several courses are planned with a view to fitting those pursuing them to enter professional engineering work and to advance therein more rapidly than would be possible without the preparation furnished by a College course. Experience shows that the graduates from technical schools generally excel in their chosen lines and it is worthy of note in this connection that railroads, manufacturers and other corporations, as well as municipalities and government departments, are demanding that those who seek promotion in their technical departments shall have secured a technical training such as can now be obtained in the engineering schools of the country.

It is very manifest, because of the lack of time in the course, the multiplicity of general subjects which must be emphasized and the lack of uniformity of details in the profession due to the local and personal differences which exist in the conduct of engineering work of all kinds that no college course in engineering can give to a student the training and experience in all the details of his profession. Moreover it seldom happens that a student in college knows definitely what specific branch of his chosen profession he will follow and it would be folly for him to spend his time on details which he may never use. A thorough education in the branches of pure and applied science which are related to professional work is essential. Having this, the engineer readily acquires familiarity with the details of his work. Without it no amount of experiment with details alone can give an engineer high rank in his profession.

Therefore it is believed that a college course in engineering should be in the first place a training of the mind of the student toward ability to think logically, to observe accurately and by the application of the former acquirement to the latter to reach correct inferences; in the second place such a course should acquaint the student with approved methods of draughting and computing, with the use and limits of the instruments employed in the every day work of his profession, and should give him an opportunity for experimental work bearing upon engineering problems; in the third place such a course should provide that the student acquire the art of expressing himself, publicly and privately, in good English and should furnish him with some knowledge of the history of his own and preceding times, thus equipping him to be an ornament to his profession, and an enlightened member of society.

In accordance with the views above expressed the engineering courses of this college include a variety of studies. These may be conveniently grouped as culture studies, training or disciplinary studies, professional studies, and practical work.

The culture studies include History, English, Modern Language, Economic Science and Civics. Thorough work in English is especially necessary in the training of the engineer to enable him to express himself with the utmost clearness and conciseness, in his reports and in papers on technical subjects. No one can attain great success as an engineer who fails in these particulars. His success in carrying out projects upon which he is engaged will often depend upon his ability to convince his superiors or public officials of the correctness of his views. The really successful engineer must also come in close contact with other members of his profession, and must exchange information of value with them through the medium of papers on technical subjects. For the attainment of these ends the engineer should give especial attention to the thoroughness of his training in English. The modern language, either French, German, or Spanish not only gives access to the technical foreign literature but also aids the work in English. History, economic science, and civics cultivate interest in mankind at large and are thus broadening to the student.

The training studies include three years of Mathematics and two or three years of Physics, the very backbone of engineering and of the training of the engineer because by their study are secured habits of logical thinking and a knowledge of the fundamental principles of matter—the laws of nature; also one or more years work in Chemistry where the habits of observing and recording facts are thoroughly instilled.

Considerable time in the Junior and Senior Years is given by all engineering students to work having practical bearing on their profession; the object being to correlate, in some measure, theory and practice.

Draughting, shop work and field work are begun upon entrance and continued in proper proportions throughout the several courses. By their means students are frequently able to obtain valuable practical experience during their vacations and are thereby, in turn, benefited by being able to see the usefulness of their college work more clearly than before.

By such vacation work the student is placed in a measure, in the position of the so-called practical engineer, who, if he be honest with himself, wishes for the advantages of a technical education.

In the professional studies the student, through his teachers, text books, and actual practice gets into touch with the problems which the engineers of the day are trying to solve, and thus learns to appreciate the difficulties which confront them.

The professional and practical studies culminate in the graduation thesis in which the student is expected to show energy, determination, resourcefulness and discrimination in the solving of a problem whose solution will add something to the store of engineering knowledge.

A certain amount of undergraduate work and a large amount of graduate work as well as the research work carried on by the individual members of the engineering faculty is devoted to the various industrial interests of the state.

Advanced students are given an opportunity to assist in all research or commercial work which is being conducted by the engineering departments.

Improvement of Engineering Courses.

Thorough revision and improvement of the engineering courses are under way and the Sophomore years of the improved courses are published in this catalogue for the first time. Many improvements and advances are being introduced, which will have the effect of still further advancing the standards of the engineering courses.

Demand for I. S. C. Engineering Graduates.

The engineering graduates of the college are scattered in remunerative and most responsible positions over the entire world. The demand for them is constantly greater than the supply. One of the departments during the past year has had calls for more than twice the number (30) of its graduates. This spring many of the seniors are engaged long anterior to commencement.

The graduates are scattered from Panama to Alaska, and from New York to the Philippines, with large representation at the principal centers of engineering work.

The George W. Catt Engineering Library.

A signal example of the loyalty to the college of its engineering graduates has occurred in the bequests to the college by Mr. George W. Catt, C. E. '82, President of the Atlantic, Gulf and Pacific Dredging Co., who on his death bequeathed to his Alma Mater his extensive engineering and economic libraries and one-half of his large fortune.

The engineering library has been placed in Engineering Hall, in conjunction with the engineering books and periodicals from the general college library, and thus through Mr. Catt's devotion, the engineering students are afforded free access to the best engineering literature. Extensive use of these library privileges is strongly urged on all engineering students. Only by extensive technical reading, especially of the current periodicals, can one really become a worthy member of the engineering profession.

Buildings and Equipment.

The buildings occupied exclusively by the Division of Engineering are the Engineering Hall, the Engineering Laboratory, the Power Station, the Forge Shop and Foundry, the Pattern Shop and the Locomotive Laboratory.

Engineering Hall.—This building, completed for occupancy at the opening of the spring term, 1903, is a fire proof building, four stories in height, having a frontage of 208 feet, a depth of 70 feet, with a semicircular wing at back, three stories in height.

The architecture is classic in treatment. The exterior is Bedford stone with plate glass windows. The interior is finished in pressed brick, with enameled brick in corridors and lavatories.

The building is heated and ventilated by the hot blast system with automatic regulation, is electric lighted and equipped with modern plumbing.

On the first floor are located the dynamo laboratory, work-shop and special laboratories of the department of electrical engineering, the cement and masonry laboratories of the department of civil engineering, the metallurgical and ceramic laboratories of the department of mining engineering, and research rooms of the department of mechanical engineering. Also public lavatories for men and women. The corridor of this floor is furnished with 400 lockers for students.

On the second and third floors are respectively the offices of the departments of Mechanical Engineering and Electrical Engineering, and of the departments of Civil Engineering and Mining Engineering. On the second floor is the general assembly room seating 400, two lecture rooms of the department of Mechanical Engineering, two laboratories for electrical engineering and instrument and cabinet rooms of the department of Electrical Engineering.

On the third floor are class, draughting and seminar rooms of the department of Civil Engineering, class and seminar rooms and museum of the department of Mining Engineering, a general engineering museum and reading room and a faculty room.

On the fourth floor are two draughting rooms and office of the department of Mechanical Engineering, draughting and instrument rooms of the department of Civil Engineering and photographic and blueprint rooms for the joint use of all departments.

The heating and ventilating apparatus is located in the basement, steam therefor being supplied through a tunnel communicating with the Power House.

The interior finish is light antique oak and the furniture is golden oak. Ample blackboards, convenient and comfortable furniture and furnishings are provided for the needs of the several departments.

Engineering Laboratory.—This building, formerly the principal engineering building and headquarters of the several departments, is now used for machine shop and engineering laboratory purposes. The arrangement and equipment of this building are described at length in connection with the mechanical and civil engineering departments.

Power Station.—This is a one story brick building, 36x120, devoted to the lighting and pumping plants of the College, and to the heating plant for the engineering buildings. All of the equipment is used for purposes of instruction, as far as this does not interfere with its other uses. The building contains an engine and dynamo room, a boiler room and a pump room.

Foundry.—This is a one story brick building, 38x78 feet, containing the equipment for instruction in foundry practice. The roof trusses are of steel and calculated to carry traveling cranes for transferring heavy castings and forgings.

New Forge Shop.—This is a one story brick building, 38x78 feet, with a store room at one end in addition. The building was constructed in 1906. It contains equipment for construction in Forge Shop Practice. The roof trusses are of steel and the roof is of slate.

Pattern Shop.—This is a one story brick building, 38x120 feet, devoted to the work of instruction in bench work, wood turning and pattern work. A fire proof room is provided for the storage of patterns.

Locomotive Laboratory.—For the temporary protection of the locomotives donated to the Department of Mechanical Engineering by the Chicago & Northwestern railway and by the estate of S. H. Mallory, a corrugated iron structure has been provided.

COURSES IN ENGINEERING.

The following general courses are given by the Dean and Vice Dean and are included in the courses of study in each of the engineering departments.

I. History of Engineering. Required second semester Senior year in all four year Engineering courses. The early development of engineering, as traced from history and from the remains of ancient works; development of engineering in later periods and its growth into a separate profession; the effect on civilization, general history and economic problems of the several inventions and other improvements which have marked the development of engineering; study of lives of more famous engineers; also the development of the general technical principles of engineering. One hour per week.

II. Specifications and Contracts. Required first semester Senior in all four year Engineering courses. Principles of engineering contract law, business methods, specifications for engineering construction. One recitation or lecture per week.

DEPARTMENT OF MECHANICAL ENGINEERING.

G. W. BISSELL, PROFESSOR.
W. H. MEEKER, ASSOCIATE PROFESSOR.
W. M. WILSON, M. P. CLEGHORN, F. G. ALLEN, ASSISTANT PROFESSORS.
E. C. POTTER, J. G. HUMMEL, H. H. URMSTON, H. R. PORTER AND A. C. GAUGH. INSTRUCTORS.
E. M. SPANGLER, M. G. LEWIS AND C. W. CLEMENTS, ASSISTANTS.
F. L. TUNIS, E. A. BERGGREN AND P. VAN GILST, STUDENT ASSISTANTS.

The headquarters of this department are in Engineering Hall. The principal offices are on the second floor. On the same floor are a lecture room and a combination class and drawing room. On the first floor are two rooms devoted to research work in mechanical engineering. On the fourth floor are two draughting rooms accommodating 160 students at one time, fitted with combination drawing tables, instrument cabinets and boards, whereby 480 students can be assigned to mechanical drawing and designing in the department. In conjunction with these rooms is a commodious office for the instructing staff in drawing. In addition the department has a common interest in and use of a photographic room, a blue print room on the fourth floor, the engineering museum, and faculty room on the third floor and the assembly room on the second floor.

The draughting and class and lecture rooms are equipped with ample blackboard space and the offices are fitted with the most convenient furniture for efficient and comfortable administration of the interests of the department.

In addition to the above space in the new Engineering Hall, the department occupies the Engineering Laboratory, the Power House, the Forge and Foundry, the Pattern Shop, and the Locomotive Laboratory.

In the Engineering Laboratory the basement is used as a hydraulic laboratory conjointly with the Department of Civil Engineering, the first floor is used as a machine shop, the second and third floors as an engineering laboratory.

Shop Work.

Students in mechanical engineering pursue the full course in shop work, which consists of six to eight hours per week for three and one-half years. Partial courses are given to the students in the mining and electrical engineering courses.

The system of instruction in the several shops begins with graded exercises calculated to familiarize the student with tools and with the materials used. The exercises are supplanted as soon as possible by work on machines or parts thereof which are to be put into actual use. By this arrangement greater interest is maintained in the work than would be possible with a strict adherence to the exercise system. The object of the shop work is not to teach trades, but to acquaint the student with the tools, materials and difficulties of shop practice and to establish in the mind principles which will aid him in designing and construction work, in the other studies of his course and in his professional career.

The machine shops are equipped with a twenty-four by twenty-four inch planer, a milling machine, a universal grinding machine, a shaper, a drill press, two emery grinders, a polishing wheel, a power hack saw, a cutting off machine, ten engine lathes of capacities from ten to twenty inch swing and three to ten feet between centers, and three speed and drilling lathes together with usual assortment of small tools in the tool room. Power is furnished to this shop by an electric motor.

The pattern shop is a brick building, one story high with spacious attic for storage of lumber. The building is one hundred and twenty feet long by forty feet wide. A tool room twelve by twenty feet is screened off in the center. A fire proof room is provided for patterns. The equipment of the pattern shop consists of a universal buzz saw, a mortising machine, planer, buzz planer, band saw, jig saw, grind stone, fifteen turning lathes, benches for thirty students, thirty comp-plete sets of small tools and a number of special tools. Power for this building is furnished by a twenty horse power electric motor.

The foundry equipment is housed in a brick building eighty by forty feet. A steel truss roof structure of substantial construction provides support for an overhead traveling crane, which serves the whole floor for handling heavy ladles and castings. A cupola and blower for melting cast iron, a brass furnace, a core oven, core benches, twelve sets of moulder's tools, crucibles, and a large assortment of flasks are used for foundry work.

The new forge shop is housed in a new brick building 38x78 feet, with a store room at one end in addition. Thirty forges, an oil burning annealing and tempering furnace, donated by the Rockwell Engineering Co., with blower and exhaust fan, drill press, vices, anvils, grindestone and small tools, such as sledges, fullers and swages, constitute the equipment for forge work.

Electric motors supply power for the forge and foundry.

Students are advised to work in outside shops during their vacations. Experience obtained in this way may be credited in the shop work required in the regular course.

Drawing.

The drawing room work begins with free hand drawing and linear perspective, and is followed successively by machine sketching, mechanical, kinematic drawing and designing. The latter division occupies the last two years of the course.

The object sought by the drawing room course is to enable the student to make, as quickly as possible, neat and accurate working drawings, to design, in general and in detail, machines or parts thereof, and to apply throughout his knowledge of shop methods and his theoretical information acquired in the laboratory and class room.

The two large drawing rooms on the fourth floor of Engineering Hall and a part of the combination drawing and class room on the second floor of the same building are equipped with fifty combination drawing tables, each accommodating four students at once. The drawing boards are placed in frames adjustable as to height and angle and equipped with parallel rulers. Each unit has twelve drawers which are assigned to students for their drawings and instruments and supplies.

Extra drawing boards are supplied so that each place can be used by more than one student at different periods.

An extensive collection of blue-prints, photographs, drawings, and trade catalogues, as well as machines and parts thereof, constitute an important part of the working equipment in this branch of the work.

Experimental Engineering.

Experimental work begins with the Junior year and extends to the end of the course. The instruction in this work is thorough, its scope being indicated by the following list of experiments:

Tensile, transverse and compression tests of materials, properties and lubricants, measurements of power by absorption and transmission dynamometers, steam guage and indicator spring calibration, flue gas analysis, indicator practice, variation of engine speed, fan-blower tests, calorimetry, including throttling and separating calorimeters, weir and water meter calibration, efficiency tests of steam engines, boilers, injectors, and steam heating, electric lighting, refrigerating, power and pumping plants, and thermal analysis of the steam engine, coal calorimetry, besides a number of special experiments in the line of investigation. Tests on power plants outside of the College are made as frequently as possible. The engineering laboratory work usually culminates in the thesis, which is an exhaustive investigation of a limited subject. From four to five hundred hours of actual time are spent on theses by students in the engineering courses.

The old and new power houses contain the complete electric light and power and pumping plants of the College, all of which are available for experimental work, and constitute a part of the engineering laboratory equipment of the engineering departments of the College. In the power houses are 100-H. P. Scotch boiler, a 51-H. P. Babcock & Wilcox boiler, two 264-H. P. Cahall horizontal water tube boilers, one with Roney mechanical stoker with induced draught, two 260-H. P. Sterling boilers with special furnaces and induced draught, a 250-H. P. Corliss engine direct connected to 150 K. W. generator, a 75-H. P. Straight Line engine, a 50-H. P. Ball engine, a 40-H. P. Buckeye engine, with five dynamos for alternating and direct current from 15 to 60 kilowatt capacity. In addition to the above, the engineering laboratory equipment of the department consists of a 25-H. P. Harris Corliss engine with Alden absorption brake, a twelve horse power Otto gasoline engine, a five horse power Lenox gasoline engine, a Wheeler condenser, three Worthington and three other water meters, two Venturi meters, a Pelton water motor, a Holly duplex pump, a Morris Machine Works centrifugal pump, injectors, weir and weighing tanks, gas meters, a Crossby steam gage tester, fan blowers for experimental work, Westinghouse and New York air pumps, a 100,000 pound Riehle testing machine with Gray autographic device, a 50,000 pound Olsen testing machine, an Olsen torsion testing machine, a Doolittle viscosimeter, a Thurston oil tester, a complete De La Vergne refrigerating machine, gas and air analysis apparatus, anemometers, two Thompson, five Crosby, two Star, and one Richards indicators, dynamometers, a Prony brake, Parr coal calorimeter, platform scales and other apparatus essential and accessory to experimental engineering.

A Hydraulic Laboratory has been fitted up in the basement of Old Engineering Hall. Water is supplied by about 700 feet of 8-inch and 10-inch cast iron pipe from the College elevated tank, of 163,000 gallons capacity. The available head is about 150 feet. Arrangements are made for measuring the loss of head from friction in the supply pipe and in its special castings. In the laboratory a tank is provided 50 feet long by 6 feet wide by 4 feet deep, which is used as a measuring and discharging tank for various pieces of apparatus, and which can also be used for experiments on the resistance of models to propulsion. The water is removed from this tank by two sewers; one 6 inches and the other 15 inches in diameter. These are arranged to be used for experiments on the laws of flow in sewer pipes. The laboratory is also provided with pipes of different sizes so arranged that measurements of the friction losses in these pipes and in their fittings can be made. Additional apparatus in the nature of hydraulic motors, pumps of various types, and apparatus for experiments with orifices is being provided.

Locomotive. The Chicago & Northwestern railway has presented to the department an eight-wheel passenger locomotive and tender complete with attachments. The locomotive will be mounted for experimental work and will be a valuable addition to the laboratory equipment.

The principal dimensions of the locomotive are as follows:

Cylinder, 16x24 inches.
Drivers, diameter, 63 inches.
Driving wheel base, 7 feet, 3 inches.
Total engine wheel base, 21 feet, 3 inches.
Total engine and tender wheel base, 42 feet, 3 inches.
Total weight of engine, 70,000 pounds.
Weight on drivers, 40,000 pounds.

The estate of S. H. Mallory of Chariton, Iowa, has presented a narrow gauge locomotive, of the first in service on the mountain roads of Colorado. The valve mechanism is of the Waelschert type and the drivers and leading wheels are on a truck with the cylinders entirely separate from the boilers.

The engine is a very interesting machine and will be the nucleus for a museum of railway mechanical engineering.

Class Room Work.

In the class room the work is carried on by means of recitation and lectures, a text book and recitations being used wherever practicable; it is necessary, however, to present much material not found in text books, and in such cases recourse is had to the lecture system. Free use is made of the projection lantern and models.

Inspection Trips.

Once each year or oftener visits of inspection are made by the Senior class to power and manufacturing plants in Chicago and other large centers.

Non-Resident Lecturers.

Lectures by men in active engineering work are introduced from time to time and serve to add interest to the College work by bringing students and teachers in contact with the outside fields of engineering application.

Thesis.

So far as possible the graduating thesis is directed along lines which will produce results directly useful to the industrial interests of the State of Iowa, but this object is not furthered to the detriment of the student's interest to whom the thesis must be first of all an opportunity to think for himself and to apply principles previously inculcated in the regular course of his studies. Thesis subjects for the current year are:

Investigation of Special Furnaces for Combustion of Soft Coal.
Effect of Variable Ratio of Air Space in Grates.
Tests of Producer Gas Engines at Algona.
Efficiency of Iowa State College Power Transmission.
Motor Drive for Engine Lathes.
Tunnel System for Central Heating Plant.
Resistance of Pipe Fittings to Flow of Water at Low Velocities.
Quick Return Mechanisms.
Tests of Power Plant for Railroad Repair Shop.
Recent Developments in Locomotive Practice.
Design of an Electric Light Plant.

Fees.

All students taking the shop work or engineering laboratory are required to pay a fee to defray the cost of materials, power, and breakage. The amount is specified in the description of the courses of study.

Mechanical Engineering at Ames and Throughout the State.

It is the desire of the department to be of all possible service to owners and operators of power stations for heat, light and power, of machine shops and of manufacturing plants in all lines.

To this end correspondence is invited relating to problems on mechanical engineering lines and whenever inquiries by letter or in person indicate a need for investigation demanding the technical skill and equipment of the department the same will be undertaken if possible and the results furnished to all interested.

COURSE IN MECHANICAL ENGINEERING.

The studies of the Academic year may be taken in either semester with the exception of Mechanical Engineering XIX and Civics I.

*Academic Course.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 5	(History I.)
Government in State and Nation, 2	(Civics I.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Advanced American History, 3	(History XVI.)

---

*Students who at entrance present satisfactory credits for part of the Academic work, or who by examinations pass part of it satisfactorily, will be classified in the remaining studies to the best advantage. Frequently such students can take ten hours of mathematics in preparing for the Freshman Year. Opportunity will be offered during the four weeks winter vacations whereby students somewhat deficient in mathematics, English or modern language can make up some work in these lines under private tutors.

THIRD SEMESTER.

Plane and Solid Geometry, 5	(Mathematics V and VIa.)
English Classics, 5	(Literature IX.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
**Government in State and Nation, 2	(Civics I.)
Free-Hand Drawing, 2	(Mechanical Engineering XIX.)

Freshman Year.

FIRST SEMESTER.

Algebra and Plane Trigonometry, 5	(Mathematics XX and XXI.)
French, 3 or	(Language XVIII.)
German, 3 or	(Language XX.)
Spanish, 3	(Language XXXVI.)
Narration and Description, 3	(English X.)
General Chemistry, 3	(Chemistry XLI.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
Technical Lecture	(Mechanical Engineering XVIII.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Military Drill	(Military I.)

SECOND SEMESTER.

Trigonometry and Analytic Geometry, 5	(Mathematics XXII and XXIII.)
French, 3 or	(Language XIX.)
German, 3 or	(Language XXI.)
Spanish, 3	(Language XXXVII.)
Exposition, 3	(English XI.)
General Chemistry, 3	(Chemistry XLII.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
Technical Lecture	(Mechanical Engineering XVIIIA.)
Descriptive Geometry, 2	(Civil Engineering IVA.)
Military Drill	(Military II.)

**Required if not taken in first semester of Academic course.

*Sophomore Year.

FIRST SEMESTER.

Analytic Geometry and Calculus, 5	(Mathematics XXIV and XXV.)
Argumentation, 2	(English XII.)
Qualitative Chemistry, 3	(Chemistry XLIII.)
Mechanics and Heat, 5	(Physics III.)
Shop Work, 2	(Mechanical Engineering XXX, XXXI or XXXII.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIA.)
**The American People, 1	(History XVII.)
Military Drill	(Military III.)

SECOND SEMESTER.

Differential and Integral Calculus, 4	(Mathematics XXVI.)
Analytical Chemistry, 2	(Chemistry XLV.)
Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
Analytical Mechanics, 3	(Mechanical Engineering Ia.)
Shop Work, 2	(Mechanical Engineering XXX, XXXI or XXXII.)
Mechanical Drawing, 2	(Mechanical Drawing XXII.)
**American Statesmen, 1	(History XVIII.)
Military Drill	(Military IV.)

Junior Year.

FIRST SEMESTER.

Analytical Mechanics, 4	(Mechanical Engineering I.)
Machine Design, 3	(Mechanical Engineering V.)
Engineering Laboratory, 1	(Mechanical Engineering XII.)
Designing, 2	(Mechanical Engineering XXIV.)
Shop Work, 2	(Mechanical Engineering XXXIII.)
Seminar, 1	(Mechanical Engineering XVIa.)
Outlines of Economics, 5	(Economic Science I.)
Electricity and Magnetism, 3	(Physics VI.)
Physical Laboratory, 1	(Physics XIVA.)
***Debating, 1	(English VII.)
**The XIXth Century, 2	(History VII.)

---

*The outline here represented for the Sophomore year goes into effect in the fal of 1907 and will be followed by those enrolled as Sophomores at that time. The outline for the following years of the revised course will be published in a later edition of the College bulletin.

**To be taken in Sophomore or Junior year.

***Elective, subject to approval of Professor of Mechanical Engineering.

SECOND SEMESTER.

Analytical Mechanics, 4	(Mechanical Engineering II.)
Materials of Construction, 3	(Mechanical Engineering III.)
Steam Engine, 3	(Mechanical Engineering IV.)
Engineering Laboratory, 1	(Mechanical Engineering XIII.)
Designing, 1	(Mechanical Engineering XXV.)
Mechanical Engineering, 2	(Mechanical Engineering XXVIII.)
Shop Work, 2	(Mechanical Engineering XXXIV.)
Seminar, 1	(Mechanical Engineering XVIIa.)
Dynamo Electric Machinery, 2	(Electrical Engineering XA.)
Physical Laboratory, 2	(Physics XIVB and XV.)
*Debating, 1	(English VIII.)
*The XIXth Century, 2	(History VIII.)

Senior Year.

FIRST SEMESTER.

Hydraulics, 4	(Mechanical Engineering VI.)
Steam Engine Design, 3	(Mechanical Engineering VII.)
Railway Mechanical Engineering, 2	(Mechanical Engineering VIII.)
Engineering Laboratory, 2	(Mechanical Engineering XIV.)
Designing, 2	(Mechanical Engineering XXVI.)
Shop Work, 2	(Mechanical Engineering XXXV.)
Seminar, 1	(Mechanical Engineering XVIb.)
Dynamo Laboratory, 2	(Electrical Engineering XX.)
Specifications and Contracts, 1	(Engineering II.)
*The XIXth Century, 2	(History VII.)

SECOND SEMESTER.

Constructive Engineering, 3	(Mechanical Engineering IX.)
Engineering Laboratory, 2	(Mechanical Engineering XV.)
Designing, 2	(Mechanical Engineering XXVII.)
Seminar, 1	(Mechanical Engineering XVIIb.)
Thesis, 5	(Mechanical Engineering XI.)
History of Engineering, 1	(Engineering I.)
Electrical Machinery, 2	(Electrical Engineering XXXII.)
Water Supply Engineering, 3	(Civil Engineering XXII.)
*Wood Technology, 3	(Horticulture XVII.)
*The XIXth Century, 2	(History VIII.)

---

*Elective, subject to approval of Professor of Mechanical Engineering.

COURSES IN MECHANICAL ENGINEERING.

Ia. Analytical Mechanics. Required second semester Sophomore year in the Mechanical and Electrical Engineering courses. Statics and Dynamics. Text book, Mechanics of Engineering, Church. Prerequisites, Physics III and Mathematics XXV. Three recitations per week.

Ib. Analytical Mechanics. Required second semester Sophomore year in the Civil and Mining Engineering courses. Statics and Dynamics. Text book, Mechanics of Engineering, Church. Prerequisites, Physics III and Mathematics XXV. Two hours per week.

I Analytical Mechanics. Required first semester Junior year in four year Engineering courses. Dynamics and Graphical statics. Text-book, Mechanics of Engineering, Church. Prerequisites, Physics III and IV, Mathematics IX. Recitations, four hours per week.

II. Analytical Mechanics. Required second semester Junior year in four year Engineering courses. Strength of Materials. Text-book, same as in Course I. Prerequisite, Course I. Recitations, four hours per week.

III. Materials of Construction. Required second semester Junior year in Mechanical, Civil and Electrical Engineering, and second semester Senior in Mining Engineering. Text-book, Materials of Construction, Johnson. Prerequisite, Course XII or Civil Engineering XIV, and Chemistry XLI and XLII. Recitations, three hours per week.

IV. Steam Engine. Required second semester Junior year in Mechanical, Electrical and Mining Engineering. Theory and practical application thereof to the steam engine and other heat engines. Text-book, Thermodynamics of Heat Engines, Reeve. Prerequisites, Course XII, Physics III and IV, and Mathematics IX. Recitations or lectures, three hours per week.

V. Machine Design. Required first semester Junior year in Mechanical Engineering. Elements of machine design. Simultaneous work in Courses I, XII and XXIV required. Lectures, three hours per week.

VI. Hydraulics. Required first semester Senior year in Mechanical, Civil, and Electrical Engineering. Text-book, same as in Course I. Prerequisite, Courses I and II. Recitations, four hours per week.

VII. Steam Engine Design. Required first semester Senior year in Mechanical and Electrical Engineering. Study of the principles involved in proportioning the cylinder dimensions of simple, compound and triple expansion engines and in designing of fly-wheels, governors, valve-gears, engine shafts, etc. Prerequisites, Courses I, II, III, and IV. Three lectures per week.

VIII. Railway Mechanical Engineering. Required first semester Senior year in Mechanical Engineering, also in Civil Engineering for students who elect the special work in the Senior year in Railway Engineering. Prerequisites, Courses I, II, III, IV, XIII, and XXV. Lectures or recitations, two hours per week.

IX. Constructive Engineering. Required second semester Senior year in Mechanical, Electrical and Mining Engineering. Principles of design and construction of heating, refrigerating, power, lighting and pumping plants in general and detail. Prerequisites, Courses I, II, IV, and XII. Lectures, three hours per week.

XI. Thesis. Required second semester Senior year in Mechanical Engineering. This course is devoted to special work on an assigned topic. Taken only by those students in the Department of Mechanical Engineering who have completed the work of the Junior year. Expenses of the thesis are adjusted by special arrangement in each case. Equivalent to five hours per week.

XII. Engineering Laboratory. Required first semester Junior year in Mechanical and Electrical Engineering, first semester Senior in Mining Engineering. Properties of materials, calibration of instruments, valve setting, indicator practice, and efficiency tests of simple machines. Text-book, Experimental Engineering, Carpenter. Prerequisites, Physics III and IV, and Chemistry XLI and XLII. One half day per week. Fee, $3.00.

XIII. Engineering Laboratory. Required second semester Junior year in Mechanical and Electrical Engineering, second semester Senior year in Mining Engineering and second semester of second year in two year course in Mining Engineering. Continuation of Course XII. One half day per week. Fee, $3.00.

XIV. Engineering Laboratory. Required first semester Senior in Mechanical Engineering. Efficiency tests of stationary and locomotive steam engines, gasoline and hot air engines, boilers, refrigerating machinery and complete plants. Prerequisites, Courses IV, XII and XIII. Two half days per week. Fee, $5.00.

XV. Engineering Laboratory. Required second semester Senior in Mechanical Engineering. Continuation of Course XIV. Two half days per week. Fee, $5.00.

XVIa. Seminar. Required first semester in Junior year in Mechanical Engineering. Written papers and discussions of assigned topics. One hour per week.

XVIb. Seminar. Required first semester in Senior year in Mechanical Engineering. Continuation of Courses XVI and XVII. One hour per week.

XVIIa. Seminar. Required second semester in Junior year in Mechanical Engineering. Written papers and discussions of assigned topics. One hour per week.

XVIIb. Seminar. Required second semester in Senior year in Mechanical Engineering. Continuation of XVIa and XVIIa. One hour per week.

XVIII. Technical Lecture. Required first semester Freshman in Mechanical Engineering in connection with required shop work. Study of elementary principles of construction and operation of steam engines, boilers and accessory apparatus. One lecture per week.

XVIIIa. Technical Lecture. Required second semester Freshman in Mechanical Engineering in connection with required shop work. Study of shop methods, tools and appliances. One lecture per week.

XIXa. Free Hand Drawing. Required first semester Academic year in Science courses. Use of pencil and pen in sketching from flat copies and from objects. Two hours credit. Four hours per week.

XIX. Free-Hand Drawing. Required second semester Academic year in all four year Engineering courses. Use of pencil and pen in sketching and linear perspective. Two hours credit. Four hours per week.

XXI. Mechanical Drawing. Required first semester Freshman in Mechanical, Electrical, Ceramics and Mining and first semester of first year in two year courses in Mining Engineering and Clay Working. Use of drawing instruments, practice in lettering, and making working drawings. Two hours credit. Six hours per week.

XXIa. Mechanical Drawing. Required first semester Freshman year in Civil Engineering. The use of drawing instruments, making of working drawings. One hour credit. Three hours per week.

XXII. Mechanical Drawing. Required second semester Sophomore year in Mechanical and Electrical Engineering and second semester of second year in two year courses in Mining Engineering and Clay Working. Working Drawings, tracings and blue prints of complete machines and their details. Prerequisite, Course XXI. Two hours credit. Six hours per week.

XXIIa. Mechanical Drawing. Required first semester Sophomore year in Mechanical, Electrical and Mining Engineering. Machine Sketching and Detailing. Prerequisites Courses XIX and XXI. One hour per week.

XXIIb. Mechanical Drawing. Required in second semester Sophomore. Of same character as Course XXII, but one hour credit. Three hours per week for Mining Engineers.

XXIV. Designing. Required first semester Junior year in Mechanical Engineering. Design of steam boilers; also study of form, strength and proportions of the frames and moving parts of cranes and other machines, with detail drawings of the same. Text-books, Steam Boilers by Peabody and Miller, Hand-book of Information, Cambria Steel Co. Prerequisites, Courses XXII and XXIII and simultaneous work in Course I. Two hours credit. Six hours per week.

XXV. Designing. Required second semester Junior year in Mechanical Engineering. Continuation of Course XXIV. One hour credit. Three hours per week.

XXVI. Designing. Required first semester Senior year in Mechanical Engineering. Each student works out the design of a standard type of steam engine with especial attention to the design of the fly-wheel and governor for efficient speed regulation, and obtains practice in laying out heating and ventilating plants. Prerequisites, Courses I, II, III, IV, XXIV, and XXV, also simultaneous work in Course VII. Two hours credit. Six hours per week.

XXVII. Designing. Required second semester Senior year in Mechanical Engineering. The design of complete machines of different types, including punching machinery, machine tools, special and automatic machinery. Attention is also given to methods of construction as influenced by cost and other conditions. Practice in laying out power plants is given in connection with Course IX. Prerequisites, Courses I, II, III, IV, and XXIV. Two hours credit. Six hours per week.

XXVIII. Mechanical Engineering. Required second semester Junior year in Mechanical Engineering. Mechanical Engineering practice, shop construction, management and cost keeping. Prerequisites, Courses V, XXIV, XXIX and XXXIII. Lectures, two hours per week.

***XXIX. Shop Work.** Required either the first or second semester Freshman year in Mechanical, Electrical, and Mining Engineering and in Ceramics, and first or second semester of first year in Two Year courses in Mining Engineering and Clay Working, and elective first semester Freshman in Civil Engineering. Bench work and wood turning. Two hours credit. Six hours per week. Fee, $5.00.

---

*Freshman Mechanical, Electrical, Mining Engineering, and Ceramic students taking Shop Work, Courses XXIX to XXXII, inclusive, in either semester, will be required to attend a course of technical lectures of one hour per week in their respective departments.

***XXX. Shop Work.** Required either first or second semester Freshman or Sophomore year in Mechanical, Electrical, and Mining Engineering, and in Ceramics, and first or second semester of first year in Two Year courses in Mining Engineering and Clay Working. Forge work, forging and welding iron and steel, and dressing and tempering tools. Two hours credit. Six hours per week. Fee, $5.00.

***XXXI. Shop Work.** Required either first or second semester Sophomore year in Mechanical and Electrical Engineering. Pattern work, making patterns and core boxes for iron and brass castings, with allowances for draft, shrinkage and finish. Prerequisite, Courses XXIX and XXXII. Two hours credit. Six hours per week. Fee, $5.00.

***XXXI. Shop Work.** Required either first or second semester Freshman or Sophomore year in Mechanical and Electrical Engineering. Foundry work, moulding and casting in iron and brass, green and dry sand, cores, mixtures and alloys. Two hours credit. Six hours per week. Fee, $5.00.

XXXIII. Shop Work. Required first semester Junior year in Mechanical and Electrical Engineering, and elective second semester Freshman year in Civil Engineering. Use of hand and machine tools for working iron, steel and brass, finishing and assembling of machines and parts thereof. Prerequisites, Courses XXIX, XXX, XXXI and XXXII. Two hours credit. Eight hours per week. Fee, $5.00.

XXXIV. Shop Work. Required second semester Junior year in Mechanical and Electrical Engineering. Course XXXIII continued. Two hours credit. Eight hours per week. Fee, $5.00.

XXXV. Shop Work. Required first semester Senior year in Mechanical Engineering. Course XXXIV continued. Two hours credit. Eight hours per week. Fee, $5.00.

---

*Freshman Mechanical, Electrical, Mining Engineering, and Ceramic students taking Shop Work, Courses XXIX to XXXII inclusive, in either semester, will be required to attend a course of technical lectures of one hour per week in their respective departments.

DEPARTMENT OF CIVIL ENGINEERING.

A. MARSTON, PROFESSOR.
L. E. ASHBAUGH AND C. B. STANTON, ASSOCIATE PROFESSORS.
T. H. MACDONALD, ASSISTANT PROFESSOR IN CHARGE OF ROAD INVESTIGATIONS.
JOHN BERG, M. J. REINHART, AND M. I. EVINGER, INSTRUCTORS.

The Department of Civil Engineering has its headquarters in new Engineering Hall. The offices of the department occupy rooms 311, 315, and 316 in the third story of the building. In addition, the Department has two large class-rooms and a combination drawing-room 40 feet by 70 feet in the fourth story, and an ample sized instrument room in the fourth story besides a cement laboratory and a masonry laboratory in the first story. The Department also has the use, in common with the other Engineering Departments, of the photographic and blue print rooms in the fourth story, the large Engineering Museum in the third story, and the large Assembly Room in the second story. All of these rooms are finely furnished and equipped throughout.

In connection with the offices provision is made for the systematizing of all the work of the Department, and card indexes for correspondence, equipment, and for general engineering literature are provided.

In addition to the space occupied in the new Engineering Hall part of the equipment of the Department is placed in the old Engineering Building. Here are located one drawing-room, the hydraulic laboratory, and most of the apparatus for testing the materials of construction. In these lines of work the Departments of Civil Engineering and Mechanical Engineering co-operate.

The Instrumental Surveying Equipment is nearly all kept in room 409 on the fourth floor, where suitable cases and racks are provided for storing it in a systematic way. The instrumental equipment includes eleven complete engineer's transits, one plain transit, one astronomical transit, one plane table, one surveyor's compass, one railroad compass, one solar compass, six traverse tables, eleven engineer's levels, and numerous chains, tapes, rods, etc. Several new transits and levels are being added to the above the present year. The Department is also well supplied with minor instruments, such as drawing instruments, clinometers, computing machines, plainmeter, hand levels, etc. This equipment is being constantly added to from yearly appropriations.

In giving out the instruments for the field work in the Civil Engineering course the captain of each field party signs a receipt for all apparatus taken out, and upon return of the same these receipts are cancelled and kept on file. Students are required to return all apparatus in as good condition as when taken out.

Although the instrument room is located on the fourth floor of the building, an electric elevator is provided, landing within a few steps of the door of the room, which makes access to the apparatus convenient.

The Cement Laboratory is located in the first story, occupying room 105. Stone topped tables are provided on three sides of this room on which the mixing and breaking of briquettes and similar work is done. On two sides of the room are provided tanks underneath these tables for the storage of briquettes. Investigations are constantly under way with cements and similar substances, so that ample storage room is required. Under the stone topped table on the other side of the room are provided cement bins for storing cement and standard sand.

A Fairbanks testing machine is used for breaking the briquettes. There is an ample supply of molds for making the briquettes and the usual apparatus is provided for testing soundness, fineness, and rate of setting.

The Masonry Laboratory occupies room 106 of the first floor. This room is intended for the testing of building materials, especially brick and stone. Laboratory tables are provided for the microscopic work and other work in this line. Grinding apparatus is arranged for preparing specimens for crushing and other tests and is separated from the rest of the room by a glass inclosure, the dust from within which is removed to the outside of the building through a flue. This laboratory also contains the abrasion testing machine, the rattler for tests of road materials, the machines for cementation tests of wood materials, a small ball mill, rock crusher and grinder. All these are operated from shafting driven by an electric motor in a separate inclosure.

The Hydraulic Laboratory is located in the basement of the old Engineering Building. The quarters here are not very suitable but it is intended to improve them as soon as possible. Water is supplied by about 700 feet of 8 inch and 10 inch cast iron pipe from the college elevated tank of 163,000 gallons capacity. The available head is about 150 feet. In the laboratory a tank is provided 50 feet long by 6 feet wide and four feet deep, which is used as a measuring and discharging tank for the various pieces of apparatus. The water is removed from this tank by two sewers, one 6 inches and the other 15 inches in diameter. These are arranged to be used in experiments on the laws of flow in sewer pipes. The laboratory is also provided with wrought iron pipes of different sizes, so arranged that measurements of friction losses in these pipes and in their fittings can be made. Additional apparatus in the nature of weirs, hydraulic motors and pumps of various types is provided.

Laboratory Facilities for other tests of the materials of construction are provided in connection with the Mechanical Engineering Department in the Old Engineering Building. The Civil Engineering Department owns jointly with the Mechanical Engineering Department, a 100,000 pound Riehle testing machine. The Civil Engineering students also have the use of other testing machines belonging to the Mechanical Engineering Department.

Standard Engineering Plans.—The Department has a large collection of blue print plans of bridges, roof trusses, buildings and similar structures, which have been kindly donated by the principal corporations engaged in structural engineering throughout the country. In a similar way, the principal railway companies of the country have donated standard plans of railway structures; and many plans and specifications of water works, sewer systems, and other engineering works are also to be found in the Department's collection of standard plans. This collection is constantly being added to. It is arranged systematically in large drawers, in filing cases provided in connection with the office equipment. In the general arrangement, plans relating to the same subject are kept in the same drawer. In addition, a card index is provided whereby any drawing in the collection can readily be found.

The Engineering Museum and Reading Room on the third floor of the new Engineering Hall, 60 feet in diameter, is intended for the joint use of all the Departments of Engineering. This room is completely supplied with museum cases, and space is provided in which will be placed large models of engineering structures. The collection of specimens for this Museum is just beginning, but the Civil Engineering Department has already a set of the full sized sections of wrought iron and steel commonly used in engineering structures and a collection of specimens of Iowa building brick, paving brick, building stone, and other building materials. The Museum collection will be extended as rapidly as possible. The engineering library is being placed in this room.

Water Works and Sewage Disposal Plant.—The Civil Engineering Department designed and supervised the construction of the college water-works. The College water tower is the largest in the West. It was designed with special reference to its architectural appearance and cuts of it have been published in four of the books treating of the design of such structures. The pumping machinery is so arranged that college students can readily make tests of the efficiency of the apparatus as part of the class work.

The Civil Engineering Department has also designed and supervised the construction of the College sewage disposal system. This is the first purification plant installed in the state and has been very successful.

The water works system and sewage disposal plant are utilized, so far as possible, to furnish practical object lessons to the students in Hydraulic and Sanitary Engineering.

For many years the Civil Engineering Department has been engaged in conducting various investigations helpful to the industrial interests of Iowa, and the results have been made available in numerous publications. This work is now merged in that of the Engineering Experiment Station, described later in this catalogue.

The Alumni of the Department.—The Civil Engineering Department of the Iowa State College is proud of the record made by its Alumni, in all branches of Civil Engineering, as shown by their eminence as engineers. They are to be found located in responsible positions throughout this country and abroad. The Department maintains an Alumni Directory and endeavors to keep in touch, so far as possible, with its graduates. It is often the case that the Department is able to be helpful to the Alumni by recommending them for positions. The Department receives more and more calls for men to fill good positions. Many of these calls come from the older Alumni themselves.

The nature of the positions open to new graduates may be seen from those occupied by one class one year after graduation. Of this class eleven were engaged in railway engineering in the states of Iowa, Illinois, Nebraska, South Dakota, Idaho, New Mexico, Arizona and Washington; two were engaged in reinforced concrete work in Iowa and New York respectively; four were in Panama on the Panama canal work; one was employed on the Government Civil Engineering work in the Philippine Islands; two were employed with consulting engineers in general engineering practice in Texas and New York respectively; four were employed in irrigation engineering work in Wyoming, Montana, and California; four were employed in structural engineering work in St. Louis, Chicago, and Ambridge, Penn.; one was engaged in water-works construction in Iowa, and one was an instructor at the Iowa State College. The salaries of these men ranged up to $125 per month.

During the year we have had calls considerably exceeding the total number of the graduating class to fill good positions.

This course includes a very careful study of English, Modern Language, either French, German or Spanish, History, Civics, and Economic Science, pure and applied Mathematics, Physics, Geology and Chemistry together with the professional studies in Civil Engineering.

For detailed information as to the nature of the professional work given in the course of Civil Engineering, the reader is referred to the statements regarding each specific subject under the head of "Courses" below. It may be said here in a general way that the instruction in Free-Hand Drawing begins in the Academic course. Mechanical Drawing, Lettering, the use of Water Colors and Pen Topography are studied in the Sophomore year. In the course of instruction in Drawing it is attempted to give the student such facility in drawing that he can do creditable work in an engineering draughting office. Especial attention is paid to the Lettering, and in the finishing up of all other drawings made in connection with his other professional work. The student is required to letter them plainly and neatly and to make finished plates. Throughout the Sophomore, Junior and Senior years the student has practice in the preparation of maps and of drawings and plans of various engineering structures.

The work in Field Surveying practice begins in the Freshman year and continues for three years, seven hours per week. The student serves in a subordinate position until he becomes familiar with the instruments and the work, and finally he has charge of a small party. He becomes familiar with land surveying, leveling, topographical surveying and railroad surveying by actual work in the field. It is the aim of the course to give the student the facility in the handling of instruments and in the carrying out of operations in field surveying which can only be acquired by considerable practice. It is also attempted to give him as much experience as possible in the handling of small parties of men. Besides the above work students actually camp in the field for two weeks in each of three summer vacations, and so become familiar with topographical work on a more extended scale. In lieu of this summer surveying many students obtain remunerative work with engineers throughout the summer vacation. Such work, when properly certified to by the engineer under whom it is taken, is accepted in lieu of the summer camp surveying. Students are encouraged and urged to secure positions of this kind, as it not only assists them financially, but also is of great benefit to them in connection with their professional training.

A course of instruction in Land and Topographical Surveying runs throughout the Sophomore year and one in Railway Engineering runs throughout the Junior year.

Electric Railways and Power Transmission are also studied in the Junior year.

Instruction in Roads and Pavements is given in the second semester of the Senior year. Sanitary Engineering, Water Works Engineering, Bridge Engineering, and Masonry Structures and Foundations are taught in the Senior year. For the details of each of these courses reference should be made to the information given below under the specific course named. The designing of engineering structures by the student begins in the second semester of the Junior year and continues throughout the Senior year. In this work the student actually designs roof trusses and stone and steel truss bridges, preparing the working drawings. A course of actual practice in testing the various materials of construction in the Engineering Laboratory is given in the Junior and Senior years, and is of great value in familiarizing the student with methods of testing and with the properties of the materials of construction.

General instruction in engineering practice and in the spirit of the profession is given by courses of technical lectures in the Freshman and Sophomore years, and by Seminar work of the Junior and Senior years.

Besides the work as given in the outlined course of study, the student in Civil Engineering gains a large part of his experience and training by inspection of engineering work on the inspection tours arranged for the upper classmen. It is planned at least once a year to have the Junior and Senior students go on an inspection trip to some point where various engineering works can be inspected and their instructive features noted. Trips are made to Chicago, St. Paul, St. Louis, and other places.

Valuable instruction is also obtained by listening to lectures given by non-resident lecturers. Practicing engineers are invited to the College to give lectures to the engineering students upon the subjects in which they are experts.

The work of the course finally culminates in the thesis, an original investigation carried on by the student to demonstrate his ability to do such work before he graduates. In the past large amounts of time have been devoted by students as a rule to this work, and it has often been the case that the results have been found worthy of publication. Each student should attempt to make his thesis one of the things of which he can justly be proud throughout the remainder of his professional career.

COURSE IN CIVIL ENGINEERING.

The studies of the Academic year may be taken in either semester with the exception of Mechanical Engineering XIX and Civics I.

*Academic Course.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 1	(History I.)
Government in State and Nation, 2	(Civics I.)
**Field Work, 2	(Civil Engineering II.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Advanced American History, 3	(History XVI.)
**Field Work, 2, or Drawing, 1	(Civil Engineering III or I.)

THIRD SEMESTER.

Plane and Solid Geometry, 5	(Mathematics V and VIa.)
English Classics, 5	(Literature IX.)

---

*Students who at entrance present satisfactory credit for part of the academic work, or who by examination pass part of it satisfactorily will be classified in the remaining studies to the best advantage. Frequently such students can take 10 hours of mathematics in preparing for the Freshman work. Opportunity will be offered during the four weeks winter vacation whereby students deficient in mathematics, English or modern language can make up some work in these lines under private tutors.

**Optional, but students are urged to take them with a view of preparing remunerative engineering work during the summer vacations.

French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
***Government in State and Nation, 2	(Civics I.)
Free-Hand Drawing, 2	(Mechanical Engineering XIX.)
****Field Work, 2 or Drawing, 2	(Civil Engineering III or V.)

Freshman Year.

FIRST SEMESTER.

Algebra and Plane Trigonometry, 5	(Mathematics XX and XXI.)
French, 3 or	(Language XVIII.)
German, 3 or	(Language XX.)
Spanish, 3	(Language XXXVI.)
Narration and Description, 3	(English X.)
General Chemistry, 3	(Chemistry XLI.)
Technical Lecture	(Civil Engineering XLI.)
*Field Work, 2 or	(Civil Engineering II.)
*Shop Work, 2	(Mechanical Engineering XXIX.)
Civil Engineering Drawing, 1	(Civil Engineering I.)
Mechanical Drawing, 1	(Mechanical Engineering XXIa.)
Military Drill	(Military I.)

SECOND SEMESTER.

Trigonometry and Analytic Geometry 5	(Mathematics XXII and XXIII.)
French, 3 or	(Language XIX.)
German, 3 or	(Language XXI.)
Spanish, 3	(Language XXXVII.)
Exposition, 3	(English XI.)
General Chemistry, 3	(Chemistry XLII.)
Technical Lecture,	(Civil Engineering XLII.)
*Field Work, 2 or	(Civil Engineering III.)
*Shop Work, 2	(Mechanical Engineering XXXIII.)
Descriptive Geometry, 2	(Civil Engineering IVa.)
Military Drill	(Military II.)
**Summer Surveying, 2 weeks	(Civil Engineering XXXI.)

---

*Students who have completed Field Work can elect Shop Work.

**All students in Civil Engineering go into camp thirteen days each summer vacation and conduct an organized topographical survey.

***Required if not taken in the first semister, Academic course.

****Optional, but students are urged to take them with a view of preparing for remunerative engineering work during the summer vacation.

*Sophomore Year.

FIRST SEMESTER.

Plane Analytic Geometry and Calculus, 5	(Mathematics XXIV and XXV.)
Argumentation, 2	(English XII.)
Mechanics and Heat, 5	(Physics III.)
Technical Lecture	(Civil Engineering XLIII.)
Surveying, 4	(Civil Engineering VIII.)
Drawing, 1	(Civil Engineering V.)
Descriptive Geometry, 1	(Civil Engineering IVb.)
***The American People, 1	(History XVII.)
Military Drill	(Military III.)

SECOND SEMESTER.

Differential and Integral Calculus, 4	(Mathematics XXVI.)
Study of Metals, 1	(Chemistry XLIV.)
Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
Technical Lecture	(Civil Engineering XLIV.)
Surveying, 4	(Civil Engineering IX.)
Drawing, 1	(Civil Engineering VII.)
Descriptive Geometry	(Civil Engineering IVc.)
Analytical Mechanics, 2	(Mechanical Engineering Ib.)
***American Statesmen, 1	(History XVIII.)
Military Drill	(Military IV.)
**Summer Surveying, 2 weeks	(Civil Engineering XXXII.)

Junior Year.

FIRST SEMESTER.

Railway Engineering, 5	(Civil Engineering X.)
Practical Astronomy, 3	(Civil Engineering XXIV.)
Seminar, 1	(Civil Engineering XXVII.)
Spherical Trigonometry, 2	(Mathematics VII.)
Analytical Mechanics, 4	(Mechanical Engineering I.)
Electric Railways and Power Transmission, 3	(Electrical Engineering XXXI.)

---

*The outline here represented for the Sophomore year goes into effect in the fall of 1907 and will be followed by those enrolled as Sophomores at that time. The outline for the following years of the revised course will be published in a later edition of the College bulletin.

**All students in Civil Engineering go into camp thirteen days each summer vacation and conduct an organized topographical survey.

***To be taken in Sophomore or Junior year.

Physical Laboratory, 2	(Physics XIV.)
**Debating, 1	(English VII.)
**The XIXth Century, 2	(History VII.)

SECOND SEMESTER.

Railway Engineering, 5	(Civil Engineering XI.)
Engineering Laboratory, 2	(Civil Engineering XIV.)
Structural Designing, 2	(Civil Engineering XVII.)
Seminar, 1	(Civil Engineering XXVIII.)
Analytical Mechanics, 4	(Mechanical Engineering II.)
Materials of Construction, 3	(Mechanical Engineering III.)
Outlines of Economics, 5	(Economic Science I.)
**Debating, 1	(English VIII.)
**The XIXth Century, 2	(History VIII.)
*Summer Surveying, 2 weeks	(Civil Engineering XXXIII.)

Senior Year.

FIRST SEMESTER.

†Framed Structures, 7 or	(Civil Engineering XVIII.)
Framed Structures, 5 and	(Civil Engineering XXXVIII.)
Railway Mechanical Engineering, 2 or	(Mechanical Engineering VIII.)
Irrigation Engineering, 2	(Civil Engineering XXXV.)
Engineering Laboratory, 1	(Civil Engineering XV.)
Sanitary Engineering, 3	(Civil Engineering XXI.)
Masonry Structures and Foundations, 3	(Civil Engineering XXIII.)
Thesis, 1	(Civil Engineering XXV.)
Seminar, 1	(Civil Engineering XXIX.)
Hydraulics, 4	(Mechanical Engineering VI.)
Specifications and Contracts, 1	(Engineering II.)

---

*All students in Civil Engineering go into camp thirteen days each summer vacation and conduct an organized topographical survey.

In place of the two weeks' summer surveying for any year there may be substituted not less than four weeks' actual engineering work done for some competent engineer, a reputable firm, or department engaged in engineering work, if certified by engineer under whom taken, on regular blank furnished by Department of Civil Engineering.

**Elective, subject to approval of Professor of Civil Engineering.

†In the Senior Year option is offered in three special lines of work, viz.:
Structural Engineering, C. E. XVIII and C. E. XIX.
Railway Engineering, C. E. XXXIV and M. E. VIII.
Hydraulic Engineering, C. E. XXXV and C. E. XXXVI.

Each Senior Civil Engineer must elect one of these special lines at the beginning of his Senior Year and this election will govern throughout both Senior semesters.

**The XIXth Century, 2	(History VII.)
**Technical Bacteriology, 3	(Botany XXXIII.)

SECOND SEMESTER.

*Higher Structures, 4 or	(Civil Engineering XIX.)
Higher Structures, 2 and	(Civil Engineering XXXIX.)
Railway Economics, 2 or	(Civil Engineering XXXIV.)
Hydraulic Engineering, 2	(Civil Engineering XXXVI.)
Roads and Pavements, 2	(Civil Engineering XII.)
Arches and Reinforced Concrete, 2	(Civil Engineering XX.)
Water Supply Engineering, 3	(Civil Engineering XXII.)
Thesis, 3	(Civil Engineering XXVI.)
Seminar, 1	(Civil Engineering XXX.)
Engineering Geology, 4	(Geology III.)
History of Engineering, 1	(Engineering I.)
**The XIXth Century, 2	(History VIII.)
**Wood Technology, 3	(Horticulture XVII.)
**Water and Sewage Analysis, 3	(Chemistry XXXIX.)

COURSES IN CIVIL ENGINEERING.

I. Civil Engineering Drawing. Required first semester Freshman year in Civil Engineering. Practice work on plain and ornamental alphabets, both free hand and mechanical, with special attention to the simple, free hand lettering. Preparation of plates illustrating the various types of letters and their uses in working drawings, maps, titles, etc. Also practice work and preparation of plates of conventional symbols used in engineering drawings. Text-books, Reinhart's, "Lettering" and "Technic of Mechanical Drafting." One hour credit. Three hours drawing per week.

II. Field Work. Required first semester Freshman year in Civil Engineering. Two hours credit. Six hours field work per week. Fee, $2.00.

III. Field Work. Required second semester Freshman year in Civil Engineering. In Courses II and III the men are assigned to do

---

*In the the Senior Year option is offered in three special lines of work, viz.:
Structural Engineering, C. E. XVIII and C. E. XIX.
Railway Engineering, C. E. XXXIV and M. E. VIII.
Hydraulic Engineering, C. E. XXXV and C. E. XXXVI.

Each Senior Civil Engineer must elect one of these special lines at the beginning of his Senior Year and his election will govern throughout both Senior semesters.

**Elective subject to the approval of the Professor of Civil Engineering.

duty as chainmen, axemen and rodmen in the squads in Sophomore Surveying and Junior Railway Surveying, of which Sophomores and Juniors have charge, besides serving as instrument men. Frequent lectures are given on methods of field work, note books, mapping etc. Two hours credit. Six hours field work per week. Fee, $2.00.

NOTE.—The work in Courses II and III is preparatory to the Field Work of the Sophomore and Junior year, which takes the same number of hours per week each year. Thus the student has the training to be obtained by three years' actual experience in the field. He begins in a subordinate position, but for a part of the time he is in responsible charge of a small party.

IVa. Descriptive Geometry. Required second semester Freshman year in all four year Engineering courses, and second semester first year in Two Year courses in Mining Engineering and Clay Working. Many original problems are also solved in class and in the draughting room. Descriptive Geometry is the connecting link between pure mathematics and technical drawing, and is taught partly as a theoretical and partly as an applied subject. Many of the problems have direct application to engineering work. Prerequisites, Mechanical Drawing, Mathematics III and V. Two hours credit. Six hours drawing and lecture per week.

IVb. Advanced Descriptive Geometry.. Required first semester Sophomore year in Civil Engineering course. Prerequisite, C. E. IVa. One hour credit. Three hours drawing and lecture required.

IVc. Advanced Descriptive Geometry. Required second semester Sophomore in Civil Engineering. The drawing is based on the principles of Descriptive Geometry, including the solution of a number of problems with various sources of light and points of view, and including the preparation and architectural rendering of a perspective drawing of a building or engineering structure, from the detailed plans. Prerequisite, Course IVa. One hour credit. Three hours per week.

Va. Drawing, Tinting, Shading and Pen Topography. Required first semester Sophomore in Civil Engineering and elective in Academic course in Civil Engineering. Course I continued. Practice with water colors, as used in tinting and in shading, the formation and use of topographical symbols, contours and hatchings, and the preparation of topographical maps. One hour credit. Three hours per week.

VII. Drawing. Plans of Structures. Required second semester Sophomore year in Civil Engineering. Course V continued. Preparation of working drawings for culverts, trestles, cattle guards, switches, small bridges and other standard structures, especially railway structures. Prerequisite, Course V. One hour credit. Three hours per week.

VIII. Surveying. Required first semester Sophomore year in Civil Engineering, elective first semester Junior or Senior year in all Agricultural and Science courses. Prerequisite, Mathematics V and VI. Four hours credit. Recitations, two hours and field work six hours per week. Fee, $3.00.

IX. Surveying. Required second semester Sophomore year in Civil Engineering and elective second semester Junior or Senior in all Agricultural courses. Course VIII continued. Recitations, two hours and field work six hours per week. Fee, $3.00.

Courses VIII and IX.—The text-books used are Johnson's "Theory and Practice of Surveying" and Elliott's "Engineering for Land Drainage." The topics treated in the class room are the use and care of surveying instruments, problems in surveying, including methods of calculating areas of tracts of land, the study of the United States public land surveys with special reference to the restoration of lost or obliterated corners, and sub-division of sections, the best methods of doing field work and keeping notes for the same, and the making of maps and profiles.

The study of Drainage Engineering demands special attention in this state and the course is adapted to such needs. The principles of the subject receive careful attention in the class room and are put into immediate practice in the investigation of various tracts of land in the vicinity of the College where development by drainage is advisable. The thorough drainage of individual farms is considered, and also the engineering and legal methods employed on large districts under county control. The usual reports of the engineer are required from each student, including complete maps and profiles, estimates of cost, and the report of the Commission on the assessment of the various properties. During the past few years it has frequently been found practicable for students to find remunerative work at drainage engineering at various places in the state in addition to their regular class work.

The field work, which occupies six hours each week, gives practice in the use and adjustment of surveying instruments, various methods of careful measurements with tapes, and with transit and level, exact methods of triangulation, and the making of surveys for maps and profiles. The data used in the land survey practice are obtained from official records at the County Recorder's office. The usual office work of making maps and profiles for surveys is carried out by each student. Frequent reference is made to the best engineering periodicals and the students prepare abstracts of articles of interest as the topics are studied in the class room. While the aim of this course is to hold rigidly to exact methods consistent with results required and to give the student a broad knowledge of principles of surveying, at the same time he is taught to use the methods employed in the best engineering offices that he may be ready to fall in line with his associates on entering his actual practice.

Special attention is given to the various methods of Topographical Surveying. During the past year each party has made a complete stadia survey of a half section of farm land, each student making a map thereof. Other subjects treated in this course are the Hydrographic Surveying, Mining Surveying, City Surveying, and Geodetic Surveying.

X. Railway Engineering. Required first semester Junior year in Civil and first semester Senior year in Mining Engineering. See Course XI. Five hours credit. Recitations, three hours and field work seven hours per week. For one of the recitations, three hours' office work is substituted during part of the term. Fee, $3.00.

XI. Railway Engineering. Required second semester Junior year in Civil Engineering. Five hours credit. Recitations, three hours and field work seven hours per week. For one of the recitations, three hours' office work is substituted during part of the term. Fee, $3.00.

For Courses X and XI the text-books are Searle's "Field Engineering," Crandall's "Transition Curves," Tratman's "Railway Track and Track Work," and Professor Marston's and Professor French's Notes, In the Notes practical details of railroad location and construction are given, standard plans for railway structures are given and discussed, and the economic theory of railway location is treated at some length. In the text-books some of the topics are simple, compound and transition curves, the location and construction of railways, track standards and maintenance, etc. In the field work a preliminary survey of about four miles of railway is made, from which a contour map is prepared. On this a "paper location" is laid down, after a careful study to determine the best route. This located line is then run in the field and cross sectioned. The grading is calculated, bills of material for culverts and bridges are made, bridges are staked out, and the cost of the line is estimated.

During the past year complete location surveys for private companies, including complete estimates of cost and all the maps, profiles and other data needed to inaugurate construction were made of two interurban railways in Iowa by parties made up of students selected from the regular class, under direction of the professor in charge. One of these lines was thirty miles in length. It is the general policy to continue such work from time to time as opportunity occurs, selecting the students to do the work from those showing greatest proficiency in this and related studies.

XII. Roads and Pavements. Required second semester Senior year in Civil Engineering. Study of good roads problem, traffic over country roads, tractive resistance, the best methods of constructing and maintaining earth, gravel, and broken stone roads, and the cost of various kinds of roads. In the study of country roads, especially as relating to Iowa conditions, great assistance is given by the fact that the College is by law the State Highway Commission of Iowa. All its data, plans, maps and publications are available and are largely made use of. In connection with pavements among the topics studied are city streets and grades, classes and methods of construction of pavements, and the cost of various kinds of paving. Text-book, Baker's "Roads and Pavements." Recitations, two hours per week.

XIII. Roads and Pavements. Elective second semester Junior or Senior year in all Agricultural courses. Work similar to Course XII. Text-book, Baker's "Roads and Pavements." Recitations, two hours per week.

XIV. Engineering Laboratory. Required second semester Junior year in Civil Engineering. Work in testing laboratory, making various standard tests of the materials of construction, including cement, building stones, paving brick, wood, cast iron, wrought iron, and steel. Two hours credit. Six hours per week. Fee, $5.00.

XV. Engineering Laboratory. Required first semester Senior year in Civil Engineering. Experiments in Hydraulic laboratory, as gauging the flow of water over weirs, through orifices and in sewer pipes, measuring the friction in pipes, and testing the efficiency of pumps and hydraulic motors. One hour credit. Three hours per week. Fee, $3.00.

XVII. Structural Designing. Required second semester Junior year in Civil Engineering. Study of stresses in roof trusses and mill buildings, followed by the design of the building and complete shop details of the roof truss and parts of the columns, crane girders, etc. In stress calculations graphic analysis is largely used and checked by the algebraic methods. Several leading types of trusses, monitors, roof and wall coverings, etc., are considered, thus furnishing many different subjects for the designs. It is the aim of this course to give the student such practice in the use of the standard hand-books, methods of design, and the making of shop drawings, that he may be of some service in the drawing room of a bridge company during the summer vacation. Students are urged to secure such practice, when possible, during the vacation preceding the work of the Senior year. Text-book, Ketchum's, "Steel Mill Bridges." Prerequisite, M. E. I., also simultaneous work in M. E. II. Two hours credit. Lectures, two hours and designing four hours per week.

XVIII. Framed Structures. Required first semester Senior year by Civils who elect special work for Senior year in Structural Engineering. Study of methods of computing stresses, proportioning members, designing joints, etc., for bridge and roof trusses and other framed structures. Special attention is given to the ordinary types of bridge trusses, the various algebraic and graphical methods for determining stresses for both uniform and wheel loadings, the effects of eccentric loading and riveting and of combined stresses, etc. Several designs are worked out, including complete shop details of girders, trusses, etc. Seven hours credit. Recitations, four hours, lecture, one hour and designing, eight hours per week.

XIX. Higher Structures. Required second semester Senior year by Civils who elect special work for Senior year in Structural Engineering. Course XVIII continued. Study of arches in steel, brief review of cantilever, suspension, and swing bridges, using many problems to illustrate the theory and the tables as presented for practical use. Text-book, Greene's, "Arches." Four hours credit. Recitations, three hours and designing three hours per week.

XX. Arches and Reinforced Concrete. Required second semester Senior year in Civil Engineering. The design of stone, brick and reinforced concrete arches. Reference texts, works on arches and reinforced concrete by Marsh, Cain, Taylor and Thompson. Prerequisites, M. E. I and II. Two hours credit. Six hours per week.

XXI. Sanitary Engineering. Required first semester Senior year in Civil Engineering. Study of principles and methods involved in the design, construction and maintenance of sewerage systems, house plumbing and sewage disposal. Text-book, Folwell's "Sewerage," and Professor Marston's Notes. Three recitations per week.

XXII. Water Supply Engineering. Required second semester Senior year in Civil and Mechanical Engineering. The principles and methods involved in the design, construction and maintenance of water works systems. Text-book, Turneaure and Russel's "Water Supply Engineering." Three recitations per week.

XXIII. Masonry Structures and Foundations. Required first semester Senior year in Civil Engineering. Study of principles involved in the design and construction of foundations, and in the design, construction, and maintenance of all classes of masonry structures. Text-book, Baker's "Masonry Structures." Three recitations per week.

XXIV. Practical Astronomy. Required first semester Junior year in Civil Engineering. Study of ordinary methods of determining latitude, longtitude, and time with their application to the Geodetic Surveying. Text-book, Hayford's "Geodetic Astronomy." Three hours credit. Recitation, four hours and laboratory three hours per week during last ten weeks of the semester.

XXV. Thesis. Required first semester Senior year in Civil Engineering. One hour credit. Three hours per week.

XXVI. Thesis. Required second semester Senior year in Civil Engineering. Original research on some chosen subject, as the study and design of some engineering project (including the surveys), the investigation of some engineering question, or an experimental investigation. Three hours credit. Nine hours per week. Students are required to put in as much additional time as may be necessary to thoroughly work up the subject chosen, and to prepare a well-digested and complete write-up of the results.

XXVII. Engineering Seminar. Required first semester Junior year in Civil Engineering. See Course XXX. One hour credit.

XXVIII. Engineering Seminar. Required second semester Junior year in Civil Engineering. See Course XXX. One hour credit.

XXIX.—Engineering Seminar. Required first semester Senior year in Civil Engineering. See Course XXX. One hour credit.

XXX. Engineering Seminar. Required second semester Senior year in Civil Engineering. One hour credit.

The Civil Engineering Seminar, Courses XXVII to XXX, inclusive, meets once each week, while College is in session, and has for its members the professors and the instructors in Civil Engineering, and all students in the Junior and Senior classes in the course in Civil Engineering. At each meeting five students give "journal reviews" of the most timely articles and topics found in the current number of the technical journals, a large number of which are regularly taken by the College Library. Another student then reads a paper on some engineering subject. Both the journal review and the paper are discussed by the other members of the Seminar. The subjects for the papers follow a regular, connected program, arranged in advance for each semester.

XXXI. Summer Surveying. Required at close of Freshman year in Civil Engineering. See Course XXXIII. Thirteen days' work in the field.

XXXII. Summer Surveying. Required at close of Sophomore year in Civil Engineering. See Course XXXIII. Thirteen days' work in field.

XXXIII. Summer Surveying. Required at close of Junior year in Civil Engineering. Thirteen days' work in field.

In the work of Courses XXXI to XXXIII, inclusive, the professors of Civil Engineering and the students in the course in Civil Engineering go into camp for fifteen days each summer vacation beginning the Saturday before Commencement, and conduct an organized topographical survey of some region in the state. Each year's work continues that of the preceding year, until a large area is mapped. At present Lakes Okoboji and surrounding territory are being mapped. Lower classmen will serve in subordinate positions. Upper classmen will have responsible charge of parties, and will do the triangulating and final mapping. Students must pay their own traveling and living expenses. A corps of student officers has direct charge of the work, part of these officers being elected by the students and part appointed by the department. It is one of the greatest honors in the course of Civil Engineering to be chosen on this corps of officers. The list of student officers for the summer camp of 1906 was as follows:

Chief Engineer—B. B. Skinner.
Assistant Chief Engineer—A. Magsaysay.
Computer—R. M. Deming.
Chief Draughtsman—F. E. Cave.
Junior Commissary—D. Ludens.
Sophomore Commissary—W. O. Price.
Freshman Commissary—C. S. Arthur.

XXXIV. Railway Economics. Required second semester Senior year in Civil Engineering by those who elect special work for Senior year in Railway Engineering. Study of the organization, operation, construction, extension, improvement, existing conditions, operation, and regulation of railways, with reference to their great duty as public servants as well as their obligations to the holder of their securities.

First—A study of the principles of incorporation, keeping in mind the weighty obligations assumed by any public service corporation who is given and accepts the "Right of eminent domain."

Second—A study of a railway's relation to its stockholders.

Third—The relation of the national government and the methods of government regulation existing and proposed.

Fourth—Their relation to the state and the shipper, including the subjects of railway capital, income, expenditures, the basis of freight rates, freight classification and taxation. Two lectures per week.

XXXV. Irrigation Engineering. Required first semester Senior year in Civil Engineering by those students who elect special work for the Senior year in Hydraulic Engineering. Irrigation history and laws, the use and duty of water, irrigation surveys and designs, the design and construction of ditches and flumes, and dams and reservoirs. Text-books, Wilson's "Irrigation Engineering" and Mead's "Irrigation Institutions." Two recitations per week.

XXXVI. Hydraulic Engineering. Required second semester Senior year in Civil Engineering by those students who elect special work for the Senior year in Hydraulic Engineering. Canal and harbor design and construction (including locks and docks) and the improvement and regulation of rivers. Text-book, Thomas and Watt's "Improvement of Rivers." Two recitations or lectures per week.

XXXVIII. Framed Structures. Required first semester Senior year Civil by those students who elect Course XXXV or M. E. VIII. An abridgement of Course XVIII. Five hours credit. Recitations, three hours and drawing six hours per week.

XXXIX. Higher Structures. Required second semester Senior year by Civils who take Course XXXVIII. An abridgement of Course XIX. Two recitations per week.

XLI. Technical Lecture. Required first semester Freshman year in Civil Engineering. Lectures on Civil Engineering Profession, on the reading of current literature, and on the elementary general features of engineering drawing and field work. One lecture per week.

XLII. Technical Lecture. Required second semester Freshman year in Civil Engineering. Lectures on the work of the axemen, chainmen, and rodmen in general surveying and railway surveying and on camp equipment and management. One lecture per week.

XLIII. Technical Lecture. Required first semester Sophomore year in Civil Engineering. Lectures on tracing, blue-printing and other methods of reproducing engineering drawings, and on the work of the beginner in a structural drafting office. One lecture per week.

XLIV. Technical Lecture. Required second semester Sophomore year in Civil Engineering. Lectures on drainage and topographical surveying, and on work of inspectors. One lecture per week.

Courses XLI and XLIV inclusive are required of all Civil Engineers, and are designed to help inculcate the spirit of the engineering profession, and to permit the presentation of many things essential to the Civil Engineer which cannot readily be given in connected form in connection with the invididual subjects of the course. All students are required to keep and present for inspection neat, full and permanent notes, but work in excess of one hour per week will not be required.

XLV. Surveying. Required first semester Sophomore year in Mining Engineering. Two hours credit. One recitation and three hours field work per week. Fee, $2.00.

XLVI. Surveying. Required second semester Sophomore year in Mining Engineering. Two hours credit. One recitation and three hours field work per week. Fee, $2.00. Courses XLV and XLVI are an abridgement of Courses VIII and IX.

DEPARTMENT OF PHYSICS AND ELECTRICAL ENGINEERING.

LOUIS BEVIER SPINNEY, PROFESSOR.
FRED ALAN FISH, ASSOCIATE PROFESSOR OF ELECTRICAL ENGINEERING.
ADOLPH SHANE, ASSISTANT PROFESSOR OF ELECTRICAL ENGINEERING.
W. B. ANDERSON AND A. H. HOFFMAN, INSTRUCTORS IN PHYSICS.
G. E. MARSH, INSTRUCTOR IN PHYSICS AND ELECTRICAL ENGINEERING.

This department aims to meet the needs of young men who have in mind the practice of electrical engineering in any of its various applications. In outlining the courses the object in view has been to secure for the student a thorough drill in those sciences, the principles of which underlie all electrical engineering practice, to secure for him a training in the application of scientific principles to the solution of practical problems in engineering, and to familiarize him with such methods of the laboratory and testing room as are available for practical and commercial determinations.

The sciences of Mathematics, Physics and Chemistry, are emphasized, as it is believed they are of first importance in such a course. The attention of the student is directed to the value of these subjects and he is urged to give them his most careful consideration.

In recognition of the fact that a knowledge of Mechanical Engineering is essential to many electrical engineering operations a large part of the student's time is devoted to a training in this direction.

Physics is the basis of the study of electricity and magnetism, the phenomena of which underlie electrical engineering theory and design, and is manifestly of sufficient importance to demand considerable time and attention in the training of the electrical engineer. In addition to the work in physics prescribed for all engineering students, the electrical engineering student spends six to twelve hours per week in the Junior and Senior years in the physical laboratory and class room.

The Physics lecture room is modern in its equipment, which includes a convenient system of darkening shutters for the windows and a large permanent lantern screen, to facilitate demonstration work. At the lecture room tables are electric, gas and water connection, placing at the disposal of the lecturer a water pressure of fifty pounds per square inch and electric currents from storage batteries, and direct or alternating current dynamos.

The department has a good equipment in apparatus for demonstration purposes, which is stored in apparatus rooms adjoining the lecture room.

The general laboratory rooms are large and well lighted and are equipped with heavy oak tables, slate-top piers and wall tables with heavy stone tops for the support of the laboratory apparatus. Convenient electric, gas and water connections are provided. A very serviceable equipment in the apparatus used in general physical laboratory work is furnished. Among other apparatus may be mentioned a laboratory clock, with electric connections, a chronograph, a reversion pendulum, two torsion pendulums for the experimental determination of "moment of inertia" and the "coefficient of simple rigidity," a physical pendulum, apparatus for the determination of the "intensity of gravity" by observations on a body rolling on an inclined plane, analytical balances, Jolly's balance, hydrostatic balance, apparatus for the determination of "Young's Modulus" by stretching and by bending, apparatus for the coefficient of linear expansion, a cathetometer, optical benches, telescopes and microscopes, spectroscopes, a saccharimeter, hydrometers, thermometers, barometers, galvanometers, Wheatstone bridges, "testing apparatus," electrocalorimeters, silver, copper and water voltameters, etc.

The photometry rooms are equipped with several photometer benches and are furnished with gas and electric connections. The arrangement of apparatus is made with a view of facilitating the regulation tests of arc and incandescent lamps as well as those of other sources of illumination.

Besides several ordinary photometers, the equipment includes a Matthew's Integrating Photometer, a storage battery of sixty 15 ampere cells, a recording voltmeter, a Weston standard voltmeter and the necessary portable voltmeters and ammeters.

The photographic laboratory is equipped with cameras and other appliances, dark-rooms, skylights, screens, and back grounds for portrait and copying work, and water facilities. The equipment enables the carrying forward of a very practical course in photography in its various applications.

The dynamo laboratory equipment includes 21 dynamos for experimental purposes, among which are three 7 1-2 K. W. 125 volt rotary converters, one 10 H. P. 220 volt 60 cycle 2-phase induction motor with a wound motor and external variable resistance with controller, four single-phase alternators of 1, 10, 25 and 35 K. W. capacity, two arc light machines, one 45 K. W. Edison generator, one 25 H. P. four-pole 110 volt motor, and several 2 and 3 H. P. series and shunt wound direct current machines. The instrument equipment of the laboratory consists of about 50 modern alternating and direct current voltmeters, ammeters and Wattmeters, a number of which are of the switch board type and are mounted at convenient points about the laboratory. The transformer equipment includes a number of modern types of transformers among which are two sets of transforming 3-phase to 2-phase or vice versa.

There are four switch boards in the laboratory, as follows: One containing the terminals of the circuits coming into the laboratory from the power station and from the physical laboratories; one containing instruments, circuit breakers, rheostats, synchronizing apparatus and terminals for the rotary converter set; one containing terminals and apparatus for the induction motor outfit; and one containing no instruments but having upon it jack terminals for 90 circuits which radiate to the other boards, to various convenient points about the laboratory and to a number of lamp banks on the walls; the purpose of this last board being to make it possible to connect together any circuits that may be desired.

There are also a considerable number of other pieces of apparatus, such as instantaneous contact makers, prony brakes, speed counters, inductance coils, tin resistance frames, water rheostats, etc.

In addition to this equipment, the student has access for experimental and test purposes, to the electric machinery of the College power house and lighting plant. Among other machines in this plant are two 15 K. W. Edison dynamos; one 30 K. W. Edison dynamo; one 15 K. W. 500 volt generator; one four-pole 18 K. W. compound-wound generator; one 15 K. W. alternator; one 30 K. W. alternator, and one 60

K. W. alternator. There is also a series of motors for driving the machinery of the Mechanical Engineering Department which range in size from five to twelve horse-power which are available for test purposes.

The repair shop is fitted with an engine lathe, a speed drill, a set of machinist's and carpenter's tools and a stock of shop supplies. This room is used for the repair and manufacture of apparatus.

COURSE IN ELECTRICAL ENGINEERING.

*Academic Course.

The studies of the Academic year my be taken either semester with the exception of Mechanical Engineering XIX and Civics I.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 5	(History I.)
Government in State and Nation, 2	(Civics I.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Advanced American History, 3	(History XVI.)

THIRD SEMESTER.

Plane and Solid Geometry, 5	(Mathematics V and VIa.)
English Classics, 5	(Literature IX.)
~~French, 5 or~~	~~(Language II.)~~
German, 5 or	(Language VI.)
~~Spanish, 5~~	~~(Language XXXI.)~~
~~**Government in State and Nation, 2~~	~~(Civics I.)~~
Free-Hand Drawing, 2	(Mechanical Engineering XIX.)

Freshman Year.

FIRST SEMESTER.

Algebra and Plane Trigonometry, 5	(Mathematics XX and XXI.)
~~French, 3 or~~	~~(Language XVIII.)~~

---

*Students who at entrance present satisfactory credits for part of the Academic work, or who by examinations pass part of it satisfactorily, will be classified in the remaining studies to the best advantage. Frequently such students can take 10 hours of mathematics in preparing for the Freshman work. Opportunity will be offered during the four weeks winter vacation whereby students deficient in mathematics, English, or modern language can make up some work in those lines under private tutors.

**Required if not taken in first semester, Academic course.

German, 3 or	(Language XX.)
~~Spanish, 3~~	~~(Language XXXVI.)~~
Narration and Description, 3	(English X.)
General Chemistry, 3	(Chemistry XLI.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
Technical Lecture	(Electrical Engineering V.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Military Drill,	(Military I.)

SECOND SEMESTER.

Trigonometry and Analytic Geometry, 5	(Mathematics XXII and XXIII.)
~~French, 3 or~~	~~(Language XIX.)~~
~~German, 3 or~~	(Language XXI.)
~~Spanish, 3~~	~~(Language XXXVII.)~~
Exposition, 3	(English XI.)
General Chemistry, 3	(Chemistry XLII.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
~~Technical Lecture~~	~~(Electrical Engineering Va.)~~
Descriptive Geometry, 2	(Civil Engineering IVa.)
Military Drill,	(Military II.)

*Sophomore Year.

FIRST SEMESTER.

Plane Analytic Geometry and Calculus, 5	(Mathematics XXIV & XXV.)
Argumentation, 2	(English XII.)
Qualitative Analysis, 3	(Chemistry XLIII.)
Mechanics and Heat, 5	(Physics III.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIa.)
~~**The American People, 1~~	~~(History XVII.)~~
Military,	(Military III.)

---

*The outline here presented for the Sophomore year goes into effect in the fall of 1907 and will be followed by those enrolled as Sophomores at that time. The outline for the following years of the revised course will be published in a later edition of the College bulletin.

**To be taken in Sophomore or Junior year.

SECOND SEMESTER.

Differential and Integral Calculus, 4	(Mathematics XXVI.)
Analytical Chemistry, 2	(Chemistry XLV.)
Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
Shop Work, 2	(Mechanical Engineering XXIX, XXX or XXXII.)
~~Analytical Mechanics, 3~~	~~(Mechanical Engineering Ia.)~~
Mechanical Drawing, 2	(Mechanical Engineering XXII.)
~~**American Statesmen, 2~~	~~(History XVIII.)~~
Military,	(Military IV.)

Junior Year.

FIRST SEMESTER.

Electricity and Magnetism, 3	(Physics VI.)
Physical Laboratory, 2	(Physics XIV.)
Differential Equations, 3	(Mathematics X.)
Analytical Mechanics, 4	(Mechanical Engineering I.)
Engineering Laboratory, 1	(Mechanical Engineering XII.)
Shop Work, 2	(Mechanical Engineering XXXIII.)
Outlines of Economics, 5	(Economic Science I.)
~~*Debating, 1~~	~~(English VII.)~~
~~*The XIXth Century, 2~~	~~(History VII.)~~

SECOND SEMESTER.

Dynamo Electric Machinery, 3	(Electrical Engineering X.)
Theory of Alternating Currents, 2	(Physics VII.)
Physical Laboratory, 2	(Physics XVII.)
Analytical Mechanics, 4	(Mechanical Engineering II.)
Materials of Construction, 3	(Mechanical Engineering III.)
Steam Engine, 3	(Mechanical Engineering IV.)
Engineering Laboratory, 1	(Mechanical Engineering XIII.)
Shop Work, 2	(Mechanical Engineering XXXIV.)
~~*Debating, 1~~	~~(English VIII.)~~
~~*The XIXth Century, 2~~	~~(History VIII.)~~

Senior Year.

FIRST SEMESTER.

Theory of Electrical Measurements, 2	(Physics VIII.)
Dynamo Laboratory, 3	(Physics XX and XXa.)

---

*Elective, subject to approval of Professor of Electrical Engineering.
**To be taken in Sophomore or Junior year.

Electrical Designing, 2	(Electrical Engineering XXIV.)
Alternating Current Machinery, 4	(Electrical Engineering XXXVI.)
Electrical Seminar, 1	(Electrical Engineering XXIX.)
Thesis, 1	(Electrical Engineering XXVI.)
Hydraulics, 4	(Mechanical Engineering VI.)
Steam Engine Design, 3	(Mechanical Engineering VII.)
Specifications and Contracts, 1	(Engineering II.)
~~*The XIXth Century, 2~~	~~(History VII.)~~

SECOND SEMESTER.

Dynamo Laboratory, 2	(Physics XXI.)
Telephony, 1	(Electrical Engineering XIII.)
Electrical Designing, 2	(Electrical Engineering XXV.)
Electric Installations and Distributing Systems, 2	(Electrical Engineering XXII.)
Electric Railways, 2	(Electrical Engineering XXXV.)
Electrical Seminar, 1	(Electrical Engineering XXX.)
Thesis, 3	(Electrical Engineering XXVII.)
Constructive Engineering, 3	(Mechanical Engineering IX.)
History of Engineering, 1	(Engineering I.)
*The XIXth Century, 2	(History VIII.)

COURSES IN PHYSICS.

I. Mechanics and Heat. Required first semester Sophomore year in Domestic Science and General and Domestic Science courses. Includes study of mass, force, energy and power, also graphic methods of solving problems in force actions, velocities, etc., radiation in general and wave motion; also mechanics and heat. Prerequisite, Mathematics IV, V, and VI. Five hours credit. Recitations, three hours and lecture two hours per week.

II. Electricity and Magnetism and Light and Sound. Required second semester Sophomore year in Domestic Science and General and Domestic Science courses. Includes study of electricity, magnetism, light and sound. This course together with Course I is to meet the needs of the students in Domestic Science. The breadth of the course, together with the emphasis which is placed upon the essentials, adapt it to the needs of teachers and others who desire a general training in physics. Prerequisite, Physics I. Three hours credit. Lectures, two hours and recitation one hour per week.

---

*Elective, subject to approval of Professor of Electrical Engineering.

III. Mechanics and Heat. Required first semester Sophomore year in all four year Engineering and Science courses and first semester of second year in two year courses in Clay Working and Mining Engineering. Study of the fundamental principles of the work, also study of vector quantities and their treatment. A view of the subject from the mathematical standpoint is emphasized and the student is urged to familiarize himself with the theoretical side of the question as it is believed that such a foundation is essential to work which follows. Text-book, Hastings and Beach, "General Physics." Five hour credit. Lectures, two hours and recitations, three hours per week.

IV. Electricity and Magnetism and Light and Sound. Required second semester Sophomore year in all four year Engineering and Science courses. Continuation of Course III. Five hours credit. Lectures, two hours and recitations, three hours per week.

VI. Electricity and Magnetism. Required first semester Junior year in Mechanical and Electrical Engineering. Elementary theory of electricity and magnetism; discussion of measuring instruments and laboratory methods of measuring various electrical quantities. Lectures, recitations and problems. Text book, Nichols and Franklin, "Elements of Physics," Vol. II. Prerequisite, Physics III and IV, Mathematics IX. Three hours credit.

VII. Theory of Alternating Currents. Required second semester Junior year in Electrical Engineering. Prerequisites, Physics VI and Mathematics X. Lectures and recitations, two hours per week.

VIII. Theory of Electrical Measurements. Required first semester, Senior year in Electrical Engineering. Prerequisite, Physics VII. Lectures, two hours per week.

IX. Theory and Practice of Photography. Elective first semester Junior, or Senior year in all Agricultural courses. Elective first semester Junior or Senior year in all Science courses (only upon recommendation by head of department in which student is taking his major work). Lecture, one hour and laboratory, one period per week.

XIV. Physical Laboratory. Required first semester Junior year in Civil and Electrical Engineering, elective first semester Junior or Senior year in Science courses. Measurement of length, mass and time, determination of physical constants, use of barometer, thermometry, calorimetry, etc. Prerequisites, Physics III and IV and Mathematics IX. Laboratory, two periods per week. Fee, $5.00.

XIVa. Physical Laboratory. Required first semester Junior year in Mechanical Engineering, elective first semester Junior or Senior year in Science courses. Laboratory, one period per week. Fee, $3.00.

XIVb. Physical Laboratory. Required second semester Junior year in Mechanical Engineering, elective second semester Junior or Senior year in Science courses. Work in XIVa and XIVb same as in XIV. Laboratory, one period per week. Fee, $3.00.

XV. Physical Laboratory, Elementary Physical Measurements. Required second semester Junior year in Mechanical Engineering, elective second semester Junior or Senior year in Science courses. Measurement of electro-motive force and internal resistance of primary and secondary batteries, use of Wheatstone's bridge, measurement of current, determination of galvanometer, constants, high resistance measurements, insulation tests. Laboratory, one period per week. Fee, $3.00.

XVI. Physical Laboratory, Elementary Physical Measurements. Elective first semester Junior or Senior year in Science courses Work as offered in Course XV. Laboratory, two periods per week. Fee, $5.00.

XVII. Physical Laboratory, Elementary Physical Measurements. Required second semester Junior year in Electrical Engineering, elective second semester Junior or Senior year in Science courses. Work as offered in Course XV. Laboratory, two periods per week. Fee, $5.00.

XVIII. Physical Laboratory, Electrical Testing. Elective first semester for Electrical Engineers. Calibration of instruments, absolute measurements, etc. Laboratory, two periods per week. Fee, $5.00.

XIX. Physical Laboratory. Electrical Testing. Elective second semester, for Electrical Engineers. Continuation of Course XVIII. Laboratory, two periods per week. Fee, $5.00.

XXVIII. Thesis in Physics.

COURSES IN ELECTRICAL ENGINEERING.

V. Technical Lecture. Required first semester Freshman year in Electrical Engineering in connection with required Shop Work. One hour per week.

Va. Technical Lecture. Required second semester Freshman year in Electrical Engineering in connection with required Shop Work. One hour per week.

X. Dynamo Electric Machinery. Required second semester Junior year in Electrical Engineering. General theory of direct-current dynamo, the establishment of electro-motive forces by induction, the magnetic circuit, armatur winding; study of characteristic curves, and the adaption of the different types of direct-current machinery to various commercial purposes is included. Text, Franklin and Esty's "Elements of Electrical Engineering." Prerequisite, Physics VI. Lectures and recitations, three hours per week.

Xa. Dynamo Electric Machinery. Required second semester Junior year in Mechanical Engineering. Prerequisite, Physics VI. Text book, Franklin and Esty's "Elements of Electrical Engineering." Recitations, two hours per week.

XIII. Telephony. Required second semester Senior year in Electrical Engineering. General study of telephony, the telephone, telephone lines, cables and commercial apparatus. Prerequisite, Physics VIII. Lecture, one hour per week.

XX. Dynamo Laboratory, Dynamo, Motor and Commercial Plant Testing. Required first semester Senior year in Mechanical and Electrical Engineering. The efficiencies of dynamos and motors, experimental determination of characteristic curves, magnetic leakage; critical study of commercial plants, and determination of efficiencies. Prerequisite, Electrical Engineering X or Electrical Engineering Xa. Laboratory, two periods per week. Fee, $5.00.

XXA. Dynamo Laboratory. Required first semester Senior year in Electrical Engineering. Study of alternating currents. Laboratory methods for measuring inductance, capacity, etc. Prerequisite, Electrical Engineering XXXVI. Laboratory, one period per week.

XXI. Dynamo Laboratory. Required second semester Senior year in Electrical Engineering. Continuation of Course XXa. Study of alternating current dynamos and motors, and commercial transformers. Laboratory, two periods per week. Fee, $5.00.

XXII. Electric Installations and Distributing Systems. Required second semester Senior year in Electrical Engineering. A study of the principles underlying the lay out of power-house and switchboard circuits and of distributing systems, including the determination of the most economical size of conductors for such systems, taking into account current prices of materials, rates of interest and depreciation, and cost of power, also numerous original and practical problems illustrating the principles. Prerequisites, Electrical Engineering X and Electrical Engineering XXXVI. Lectures and recitations, two hours per week.

XXIV. Electrical Designing. Required first semester Senior year in Electrical Engineering. The design of direct current generators. Prerequisite, Electrical Engineering X. Two afternoons per week.

XXV. Electrical Designing. Required second semester Senior year in Electrical Engineering. The design of alternating current generators and transformers. Prerequisite, Electrical Engineering XXXVI. Two afternoons per week.

XXVI. Thesis. Required first semester Senior year in Electrical Engineering. Preparation of a thesis of some Electrical engineering subject—the designing and construction of some electrical machine or measuring instrument, the efficiency test and critical study of some dynamo-electro machine or power plant, or of electrical research work of special direction. One hour credit per week.

XXVII. Thesis. Reauired second semester Senior Year in Electrical Engineering. Continuation of Course XXVI. Three hours credit. The two courses are equivalent to at least four hours per week for one semester.

XXIX. Electrical Seminar. Required first semester Senior year in Electrical Engineering. Consists of preparation, presentation and discussion of papers upon special assigned topics in Electrical Engineering. Papers must be carefully written and submitted to professor in charge. One hour per week.

XXX. Electrical Seminar. Required second semester Senior year in Electrical Engineering. Continuation of Course XXIX. One hour per week.

XXXI. Electric Railways and Power Transmission. Required first semester Junior year in Civil and Mining Engineering. An elementary study of the application of the principles of electro-magnetism to the transmission and distribution of power for industrial purposes, including power plants, transmission lines and electric motors. Prerequisites, Physics III and IV, and Mathematics IX. Three hours per week.

XXXII. Electrical Machinery. Required second semester Senior year in Mechanical Engineering. The construction and operation of electrical machinery and its application to electric lighting and power distribution. Prerequisite, Electrical Engineering Xa. Recitations, two hours per week.

XXXV. Electric Railways. Required second semester Senior year in Electrical Engineering. A study of electric railway systems and apparatus, including the design of feeders and trolleys and the determination of the proper equipment for a given service. Prerequisites, Electrical Engineering X and Electrical Engineering XXXVI. Lectures and recitations, two hours per week.

XXXVI. Alternating Current Machinery. Required first semester Senior year in Electrical Engineering. Study of alternating current generators, motors, transformers, etc. Prerequisites, Physics VII and

Electrical Engineering X. Lectures and recitations. Four hours per week.

DEPARTMENT OF MINING ENGINEERING.

SAMUEL WALKER BEYER, PROFESSOR.
LAURENCE C. HODSON AND IRA A. WILLIAMS, ASSISTANT PROFESSORS.
C. E. ELLIS, INSTRUCTOR.

The courses in Mining Engineering are planned to give the student a ready familiarity with the branches which form the ground work of science of Mining and Metallurgy. The Department of Mining Engineering aims to give him such a thorough training in the fundamentals as will enable him after graduation to acquire in a comparatively short time the practical experience absolutely necessary before he is fitted to assume positions of great responsibility in the mining industries. The department offers two courses A four years'; and a two years.' The first is intended for those students who desire a "thorough course in Theoretical and Practical Mining," and underlying sciences, and leads to the degree of Bachelor of Science in Mining Engineering. The requirements for admission are the same as those for admission to other Engineering courses. Students who pursue this course to completion are expected to be able to undertake the "full management of mining in its various branches," at least as practiced in Iowa, and become familiar with the principles involved and the methods employed in good mining engineering practice in general.

The latter course is designed for young men who have had some practical experience in mines, and wish to study mine surveying, drafting, the problems of ventilation, drainage, haulage, mine operating, etc., and also to learn something of the sciences which bear upon their work but have neither the time nor the preparation for a full college course. Elementary mathematics, drawing and shop work receive considerable attention during the first year, while the professional studies are reserved for the second year. Candidates who are twenty-one years of age or over are admitted without examination. All others must give evidence of a thorough grounding in the common branches.

Equipment.

The Department of Mining Engineering occupies six rooms on the third floor and one on the first floor of Engineering Hall and shares in common with the other Engineering departments the blue print, photographic, Engineering Museum and Assembly rooms. Of the rooms used exclusively by the Department of Mining Engineering, one is used for laboratory purposes only, two for laboratory and lecture purposes, one as a museum, and three afford space for supplies, instruments, books and filing cases, in addition to their use for office purposes.

Lecture Room and Laboratory in Mining Engineering.—This room is provided with seventy-five opera chairs with folding arm rests, a wall table cabinet occuppying all of the outside wall space and so arranged as to provide excellent working space in front of the windows while the space below the windows is utilized for the filing of study material. Above the wall table, lockers with glass doors are provided, in which students may keep books and small pieces of apparatus free from dust. The windows are all provided with opaque shades and the room with a permanent lantern screen. The balance of the interior wall space is occupied by slate blackboards. A large cabinet lecture table completes the equipment of the room.

Seminar Room.—The seminar room is used for both laboratory and lecture purposes as in the case of the preceding, in addition to serving as a conference room and headquarters for the Junior and Senior students in Mining Engineering. It is equipped with two long tables standing at right angles to and directly connected with a large cabinet lecture table, the whole forming a continuous table in the form of a U. The room has a seating capacity of thirty-six and is equipped with movable revolving chairs, and slate blackboards on the interior walls. In addition the room contains a twenty-two tray filing case for large drawings, plats and maps, and a supply case.

Metallurgical Laboratory.—The laboratory for Metallurgy and Ceramics is located on the ground floor and is fitted with soapstone topped cabinet wall tables occupying all the outside walls and a large fume chamber, supply and display cases. It is supplied with water, gas, compressed air, exhaust and electrical connections. It already contains a Hoskin's No. 4 muffle furnace and a Bosworth assay furnace with the usual accessories for doing metallurgical and ceramic work.

The Museum.—The museum for Geology and Mining Engineering is fitted with eight museum cases with sloping glass tops and cabinet bases. The bases supply room for one hundred and ninety-two trays in which the working collections and duplicate material in Geology and Mineralogy are filed. One large central case containing the larger casts of the "Ward Series," a series of cases, showcase tops and cabinet bases, occupy the space between the windows, and permanent cases occupy all the partition wall space.

The offices supply room for apparatus, supplies, books, and filing cases.

The department is supplied with a Sullivan core drill with a complete set of tools and accessories for carrying on actual field operations, a "Queen" Light Mountain mining transit; two "Berger" No. 4 Mining transists with interchangeable side and top telescopes; a Brunton transit; a sensitive six-dial anemometer reading to ten millions of feet and adapted for the measurement of currents of air through mines and tunnels—an instrument absolutely necessary in order to deal intelligently with the problems of mine ventilation; rods and sighting poles; a set of miner's tools; a barometer, clinometer, a series of miner's lamps and various instruments used in ascertaining distances.

During the past year the department has received through the generosity of the J. George Leyner Engineering Works of Denver, Colorado, one Water Leyner Rock Drill, with column condenser, and full complement of steel.

The laboratory in Metallurgy and Ceramics possesses aside from the list of utensils to be found in any well equipped laboratory for these branches of chemical work, the following special pieces of apparatus: Weatherhead mortar and porcelain mortars for pulverizing; a set of brass brickette molds, chemical balance; torsion balance; one Hoskin's No. 4 muffle furnace; one Bosworth assay furnace; Le Chatelier thermo-electric pyrometer; a Seger volumeter; two-jar ball-mill; Sturtevant laboratory crusher; and sample grinder.

The proximity of Ames to the Iowa coal fields affords easy access to the coal mines of Boone and Polk counties. The great centers of the clay industry, Des Moines, Boone, and Fort Dodge are equally accessible while the quarries of Marshall county are scarcely more than an hour's ride from the College. These and numerous allied industries are, after all, the most important and indispensable laboratories for the practical mining engineer. The department undertakes to present the accepted theories concerning mineral aggregation, origin and occurrence but these theories can be put to test only by an intelligent use of the drill, the level and the plane table. The accredited methods of winning the ores and minerals receive full discussion in the class room, but only render obvious the necessity of becoming familiar with the practical workings of the sluice box, the tipple and the stamp mill. The chemical and physical properties of a clay may be ascertained in the laboratory, but a complete knowledge of its properties and its mode of treatment can be gained only by following it from the pit to the street. In short, the department aims to give as complete an exposition of the theories and laws which underlie the science of mining as time will permit, but the verification and application of these theories and laws must be made, in large measure, in the field and in the industries.

It is the settled policy of the department to carry on such investigation work as may be of benefit to the mining and manufacturing interests of the state. In co-operation with the other Engineering departments considerable work has been done and is being done on fuels, clays and structural materials. The department is also prepared to do a limited amount of assaying, test clays and fuels, do mine surveying, prepare mine maps and plats, examine and report on mine and clay properties for citizens of the state at reasonable cost. In fact the atmosphere produced by practical investigation work, is believed to be necessary to the healthful growth of the engineer, and no opportunity is lost to encourage work along these lines.

Courses in Mining.

The work of the first two years in the four years' course in Mining Engineering is exactly the same as that required in the course in Mechanical Engineering, with the exception that Surveying takes the place of Mechanical Drawing, and the addition of Principles of Mining in the second semester (Freshman). The professional studies are given due prominence during the last two years of the course and the student is required to take continuous work in mining, chemistry and metallurgy, and geology, through the last three semesters. He is expected to make one of these branches the subject of special investigation and to embody the results of such investigation in a thesis, which is required of every student who is a candidate for graduation.

It is generally recognized that there is of necessity a considerable gap between the work included in the College curriculum and that of the professional engineer; and that the student in Engineering must gain the larger part of his professional training outside of college walls. The courses in summer field work are offered in the hope that his apprenticeship may be reduced to a minimum, and are required of all students in the four years' course in Mining Engineering.

COURSE IN MINING ENGINEERING.

*Academic Course.

The studies of the Academic year may be taken in either semester with the exception of Mechanical Engineering XIX and Civics I.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 5	(History I.)
**Government in State and Nation, 2	(Civics I.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Advanced American History, 3	(History XVI.)

THIRD SEMESTER.

Plane and Solid Geometry, 5	(Mathematics V and VIa.)
English Classics, 5	(Literature IX.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
**Government in State and Nation, 2	(Civics I.)
Free-Hand Drawing, 2	(Mechanical Engineering XIX.)

Freshman Year.

FIRST SEMESTER.

Algebra and Plane Trigonometry, 5	(Mathematics XX and XXI.)
French, 3 or	(Language XVIII.)

---

*Students who at entrance present satisfactory credits for part of the Academic work, or who by examinations pass part of it satisfactorily, will be classified in the remaining studies to the best advantage. Frequently such students can take 10 hours of mathematics in preparing for the Freshman work. Opportunity will be offered during the four weeks winter vacations whereby students somewhat deficient in mathematics, English or modern language can make up some work in those lines under private tutors.

**Elective, but students are urged to take this work.

German, 3 or	(Language XX.)
Spanish, 3	(Language XXXVI.)
Narration and Description, 3	(English X.)
General Chemistry, 3	(Chemistry XLI.)
Shop Work, 2	(Mechanical Engineering XXIX or XXX.)
Technical Lecture	(Mining Engineering I.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Military Drill,	(Military I.)

SECOND SEMESTER.

Trigonometry and Analytic Geometry, 5	(Mathematics XXII and XXIII.)
French, 3 or	(Language XIX.)
German, 3 or	**(Language XXI.)**
Spanish, 3	(Language XXXVII.)
Exposition, 3	(English XI.)
General Chemistry, 3	(Chemistry XLII.)
Shop Work. 2	(Mechanical Engineering XXIX or XXX).
Technical Lecture,	(Mining Engineering Ia.)
Descriptive Geometry, 2	(Civil Engineering IVa.)
Military Drill,	(Military II.)
**Summer Field Work, 2 weeks	(Mining Engineering XII.)

*Sophomore Year.

FIRST SEMESTER.

Plane Analytic Geometry and Calculus, 5	(Mathematics XXIV and XXV.)
Argumentation, 2	(English XII.)
Qualitative Analysis, 3	(Chemistry XLIII.)
Mechanics and Heat, 5	(Physics III.)
Surveying, 2	(Civil Engineering XLV.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIa.)
***The American People, 1	(History XVII.)

---

*The outline here represented for the Sophomore year goes into effect in the fall of 1907, and will be followed by those enrolled as Sophomores at that time. The outline for the following years of the revised course will be published in a later edition of the College bulletin.

**Students who secure remunerative employment during their summer vacations between Freshman-Sophomore and Sophomore-Junior years will be excused from summer field work, providing they are so employed for one month, subject to the approval of the heads of the department.

***To be taken in Sophomore or Junior year.

SECOND SEMESTER.

Differential and Integral Calculus, 4	(Mathematics XXVI.)
Elementary Quantitative Analysis, 4	(Chemistry XLVI.)
Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
Surveying, 2	(Civil Engineering XLVI.)
Analytical Mechanics, 2	(Mechanical Engineering Ib.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIb.)
***American Statesmen, 1	(History XVIII.)
Military Drill,	(Military IV.)
*Summer Field Work, 2 weeks	(Mining Engineering XII.)

Junior Year.

FIRST SEMESTER.

Mine Surveying, 2	(Mining Engineering X.)
Seminar, 1	(Mining Engineering VI.)
General Geology, 5	(Geology II.)
Blow-Pipe Analysis and Assaying, 5	(Chemistry VII and VIII.)
Analytical Mechanics, 4	(Mechanical Engineering I.)
Electric Railways and Power Transmission, 3	(Electrical Engineering XXXI.)
**Debating, 1	(English VII.)
**The XIXth Century, 2	(History VII.)

SECOND SEMESTER.

Principles of Mining, 3	(Mining Engineering II.)
Metallurgy, 3	(Mining Engineering XIV.)
Seminar, 1	(Mining Engineering VII.)
Mineralogy, 3	(Geology VI.)
Quantitative Analysis, 3	(Chemistry XII.)
Analytical Mechanics, 4	(Mechanical Engineering II.)
Steam Engine, 3	(Mechanical Engineering IV.)
**Debating, 1	(English VIII.)
**The XIXth Century, 2	(History VIII.)
*Summer Field Work, 4 weeks	(Mining Engineering XIII.)

---

*Junior students who secure instructive employment in one of the great metal mining districts of the country will be excused from the Junior summer field work, providing they are so employed for at least six weeks subject to the approval of the head of the department.

**Elective, subject to the approval of the Professor of Mining Engineering.

***To be taken in Sophomore or Junior year.

Senior Year.

FIRST SEMESTER.

Principles of Mining, 3	(Mining Engineering III.)
Metallurgy, 5	(Mining Engineering XV.)
Seminar, 1	(Mining Engineering VIII.)
Mineralogy, 3	(Geology VII.)
Quantitative Analysis, 2	(Chemistry XXX.)
Railway Engineering, 5	(Civil Engineering X.)
Engineering Laboratory, 1	(Mechanical Engineering XII.)
Specifications and Contracts, 1	(Engineering II.)
*The XIXth Century, 2	(History VII.)

SECOND SEMESTER.

Mining Engineering, 4	(Mining Engineering IV.)
Mining Law, 1	(Mining Engineering V.)
Seminar, 1	(Mining Engineering IX.)
Thesis, 3	(Mining Engineering XI.)
Advanced Geology, 5	(Geology IV.)
Materials of Construction, 3 or	(Mechanical Engineering III.)
Constructive Engineering, 3	(Mechanical Engineering IX.)
Engineering Laboratory, 1	(Mechanical Engineering XIII.)
History of Engineering, 1	(Engineering I.)
*The XIXth Century, 2	(History VIII.)
*Wood Technology, 3	(Horticulture XVII.)

TWO YEAR COURSE IN MINING ENGINEERING.

First Year.

FIRST SEMESTER.

Algebra, 5	(Mathematics III.)
Plane Geometry, 5	(Mathematics V.)
Elementary Experimental Chemistry, 5	(Chemistry XXI.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Shop Work. 2	(Mechanical Engineering XXIX or XXX).
Technical Lecture	(Mining Engineering I.)

---

*Elective, subject to the approval of the Professor of Mining Engineering.

SECOND SEMESTER.

Solid Geometry and Plane Trigonometry, 5	(Mathematics VI.)
Elementary Experimental Chemistry, 5	(Chemistry XXIII.)
Principles of Mining, 3	(Mining Engineering II.)
Drawing, 2	(Civil Engineering IVa.)
Shop Work, 2	(Mechanical Engineering XXIX or XXX.)
Technical Lecture	(Mining Engineering Ia.)

Second Year.

FIRST SEMESTER.

Blow-Pipe Analysis and Assaying, 5	(Chemistry VII and VIII.)
Surveying, 2	(Civil Engineering XLV.)
Principles of Mining, 3	(Mining Engineering III.)
Mechanics and Heat, 5	(Physics III.)
Seminar, 1	(Mining Engineering VI.)

SECOND SEMESTER.

Surveying, 2	(Civil Engineering XLVI.)
Mining Engineering, 4	(Mining Engineering IV.)
Mining Law, 1	(Mining Engineering V.)
Metallurgy, 3	(Mining Engineering XIV.)
General Geology, 4	(Geology II.)
Engineering Laboratory, 1	(Mechanical Engineering XIII.)
Seminar, 1	(Mining Engineering VII.)
Mechanical Drawing, 2	(Mechanical Engineering XXII.)

COURSES IN MINING ENGINEERING.

I. Principles of Mining. Required first semester Freshman year in Mining Engineering and Ceramics and two year courses in Mining Engineering and Clay Working in connection with the required Shop Work. The student receives instruction in the general and elementary principles of mining in order that he may appreciate something of what he sees and hears before he makes a detailed study of prospecting, exploration, mining methods, and the various subjects included in Courses II, III and IV. Special attention given to mining terms and local mining methods. One hour per week.

Ia. Principles of Mining. Required second semester Freshman year in Mining Engineering and Ceramics and Two Year courses in

Mining Engineering and Clay Working in connection with the required Shop Work. One hour per week.

II. Principles of Mining. Required second semester Junior year in Mining Engineering and second semester of first year in Two Year course in Mining Engineering. Study of methods employed in excavating, boring and shaft sinking, mining and the support of mine excavations; also critical study of methods employed in exploration, development and mine working in general. Recitations, three hours per week.

III. Principles of Mining. Required first semester Senior year in Mining Engineering and first semester second year in Two Year course in Mining Engineering. Continuation of Course II. The principles involved in coal mining in general and of those principles which are applicable to the Iowa coal fields in particular; also of mine ventilation, drainage and lighting. Recitations, three hours per week.

IV. Mining Engineering. Required second semester Senior year in Mining Engineering, and second semester second year in Two Year course in Mining Engineering. Study of mine plant administration, mine accounts; critical study of mining machinery, with special reference to the types best adapted to meet the requirements of the various conditions in actual practice; mine buildings and general equipment and administration of a mine plant; also ore dressing. Recitations, four hours per week.

V. Mining Law. Required second semester Senior year in Mining Engineering and second semester second year in Two Year course in Mining Engineering. Outline of most important laws affecting the mineral industry. While the laws on the statute books at the present time are for the greater part local and while an exhaustive study of them in the time available is out of the question, the necessity of some knowledge of the law is impressed upon the student and he is shown where he can obtain information on the simpler questions. Recitation, one hour per week.

VI. Seminar. Required first semester Junior year in Mining Engineering and first semester second year in Two Year courses in Clay Working and Mining Engineering. For the purpose of bringing together the Junior and Senior students and the members of the instructing corps for weekly conferences. A discussion of timely topics by the students. One hour credit.

VII. Seminar. Required second Semester Junior year in Mining Engineering and second semester second year in Two Year courses in

Clay Working and Mining Engineering. Continuation of Course VI. One hour credit.

VIII. Seminar. Required first semester Senior year in Mining Engineering. Continuation of Courses VI and VII. One hour credit.

IX. Seminar. Required second semester Senior year in Mining Engineering. Continuation of Courses VI, VII and VIII. One hour credit.

X. Mine Surveying. Required first semester Junior year in Mining Engineering. Supplements the work in surveying taken in the Civil Engineering Department. Methods of surveying especially adapted to mines and tunnels; also practical work with top and side telescope and the various calculations which its use requires. Two hours credit. Recitations, one hour and field work four hours per week.

XI. Thesis. Required second semester Senior year in Mining Engineering. Special investigation. Three hours credit.

XII. Summer Field Work in Mine Surveying. Two weeks work required at the close of the Freshman and Sophomore years. The work is carried on in one of the coal mining districts of the state and comprises the complete survey of a mine and a thorough examination of the equipment and mode of operation of a typical mine for the district, and leads in the first place to a mine map, and in the second to a careful report on mine property accompanied by the necessary illustrations.

XIII. Summer Field Work in the Study of Mine Operation and Equipment, and of Concentrating Plants. Four weeks' work required of students who have completed the Junior year. This course necessitates a visit to one of the great metal producing centers outside of the state. A careful study of mine properties is made, and a detailed report, properly illustrated by sketches and drawings, is required. A portion of the time is devoted to a study of ore dressing and concentrating plants.

XIV. Metallurgy. Required second semester Junior year in Mining Engineering and second semester of second year in Two Year course in Mining Engineering. Study of refractory materials, fluxes, fuels and furnaces and the metallurgy of iron and steel; also pyrometry, calorimetry, fire clays and coke; the various metallurgical furnaces studied from working drawings; also study of science of metallography. Recitations, three hours per week.

XV. Metallurgy. Required first semester Senior year in Mining Engineering. Study of processes relating to copper, lead, silver and zinc. In the time allotted to the work, a study of metallurgy of all the metals could not be made satisfactorily, and it is deemed best to confine the work to the most important metals and the most important processes. Recitations, five hours per week.

COURSES IN GEOLOGY REQUIRED OF STUDENTS IN ENGINEERING COURSES.

I. Physiography. Required first semester Freshman year in Science, first semester Sophomore year in Science and Agriculture, elective first semester Junior or Senior year in all Agricultural courses. An introduction to the science of Geology. A study of agents which help modify the earth's crust, also results of this action. Text-book, Davis' or Tarr's "Elements of Physical Geography." Recitations, three hours per week.

II. General Geology. Required first semester Junior year in Mining and second semester of second year in Two Year courses in Clay Working and Mining Engineering, elective first semester Junior or Senior year in all Agricultural and Science courses. A study of principles which form the groundwork of the science, including dynamic, structural, stratigraphic, and historical geology. Students make excursions to points of geological interest to verify facts discussed in the class room. Prerequisites, one semester of Chemistry, also Physics I or III. Recitations, five hours per week.

III. Engineering Geology. Required second semester Senior year in Civil Engineering. A discussion of fundamental principles of dynamical and structural geology; and study of common minerals and rocks, especially those important in structural materials. Prerequisites, one semester of Chemistry, also Physics I or III. Recitations, four hours per week.

IV. Advanced Geology. Required second semester Senior year in Mining, and elective second semester Junior or Senior year in all Agricultural, and second semester Junior or Senior in all Science courses. Includes study of nature, mode of occurrence and origin of the minerals and rocks constituting the earth's crust; rock alterations as involved in metamorphism and weathering. Excursions continued as in Course II. Prerequisite, Course II or III. Recitations, five hours per week.

VI. Mineralogy. Required second semester Junior year in Mining and elective second semester Junior or Senior year in Science courses. Study of morphological and physical properties of crystalline substances. Prerequisites, one semester Chemistry, Physics I or III, and Mathematics VI. Three hours credit. Recitations, two hours and laboratory, one period per week.

VII. Descriptive and Determinative Mineralogy. Required first semester Senior year in Mining Engineering. A study of the more important mineral species, their properties, uses, distribution, and methods of determination. Prerequisite, Geology VI. Three hours credit. Recitations, two hours and laboratory one period per week.

Ceramics and Clay Working.

The Department of Ceramics is established by the College in response to a growing demand for instruction in the silicate industries. The continued development of the clay working interests and the notable recent expansion along all lines of the cement industry have created a demand for technically educated men who are equipped to take the lead in the utilization of our silicate raw materials. Only recently the Division of Engineering received a request from the largest Portland Cement Company in the United States for Ceramic Engineers, a request which at this time cannot be filled. Inquiries for qualified men along these lines have come from other sources but at the present time the demand is far greater than the supply.

The term "Ceramics" has come to include within its scope the several phases of that branch of engineering which has to do with the investigation and development of all materials which enter into any of the silicate products. Besides clay and cement, therefore, glass-making, sandlime brick manufacture and all mortar work into which natural silicates or silicate forming processes enter are properly embraced in the definition of the word.

The ceramic processes proper are pre-eminently a phase of chemical engineering and depend upon the principles of technical chemistry. Along with this application of chemical principles must go, however, a thorough familiarity with good mechanical engineering practice and in this line a knowledge of surveying and the principles of electricity is also essential. The ceramist must likewise possess a knowledge of geology which will enable him to intelligently prospect for raw materials and to take advantage of geological features in their utilization. An acquaintance with metallurgical principles, especially those relating to the value of fuels and their combustion and the properties of slags is indispensable, for upon the application of this knowledge may frequently depend the success or failure of large enterprises.

It is the design of the course in Ceramics to prepare and equip engineers to (a), intelligently exploit deposits of suitable raw materials, (b) to comprehend and apply economical methods to the winning of such materials, (c) to design and put into operation plants for their utilization and, (d) to take responsible charge of any and all technical processes connected with the manufacture of the finished products. To accomplish this, not only are the principles laid down in the class room and theories explained but these principles and theories are verified and applied in the laboratory. Students are also required to study the methods employed in some of the leading establishments of the state and are encouraged to spend their vacations in practical work at some of these plants.

The Iowa Brick and Tile Association while in session at Sioux City in 1899 passed a resolution requesting the trustees of the College to take up the investigation of the clays and the clay industries of the state. Similar resolutions were passed at each succeeding annual convention of the association. In 1906 both the Iowa Brick and Tile Association and the Iowa Cement Users Association passed resolutions favoring the establishment of a "School of Ceramics" and providing for the investigation of the raw materials available for the silicate industries. Each organization appointed a committee to take the matter before the legislature then in session and secure the necessary legislation.

After a conference of the joint committee in Des Moines the following bill was prepared, presented to the legislature, and passed by that body:

To provide for the establishment of a course of practical and scientific instruction and investigation in the art of clay working and ceramics including the manufacture and use of cements and allied industries in the Iowa State College of Agriculture and Mechanic Arts.

Section 1. Be it enacted by the general assembly of the State of Iowa that the Trustees of the Iowa State College of Agriculture and Mechanics Arts be, and are hereby required to establish in said college a department of ceramics for the technical and practical education of clay workers, cement manufacturers and other allied pursuits in all branches of those arts which exist in this state and can be profitably introduced and maintained in this state from the mineral resources thereof; including the geology and properties of clays, cement materials, fuels, and other minerals required, and the testing of the products thereof; also the manufacture of fire brick, pressed brick, paving brick, and the glazed and enameled brick of all kinds, of sewer pipe, drain tile, fire proofing and terra cotta, of pottery, porcelain, china, and other specialties; also including the details of the manufacture and uses of cement and the details of other allied industries.

Section 2. Be it further enacted, that the said College shall provide as a part of its Engineering Experiment Station work for the investigation of clays, cement materials, fuels, and other mineral resources of the state with especial reference to their economic uses, and for the publication and dissemination of information useful to such industries and for testing the products thereof.

In accordance with the spirit of the act establishing the department it is the desire to continue in co-operation with the Engineering Experiment Station the investigation of promising deposits of raw materials in different parts of the state. It is the policy of the department to serve the interests of the people of the state and to carry on such experiments as may seem required to determine the suitability of materials that appear to be available for any ceramic purpose.

Courses in Ceramics.

Two courses are offered in Ceramics; a two year and a four year course. The shorter course is the equivalent of the short course in Mining Engineering while the longer course is coordinate with the four year courses offered in Mechanical, Civil, Electrical and Mining Engineering.

COURSE IN CERAMICS.

**Academic Course.

The studies of the Academic year may be taken either semester with the exception of Mechanical Engineering XIX and Civics I.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 5	(History I.)
*Government in State and Nation, 2	(Civics I.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)

---

*Elective, but students are urged to take this work.

**See note under Academic courses in Engineering.

French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Advanced American History, 3	(History XVI.)

THIRD SEMESTER.

Plane and Solid Geometry, 5	(Mathematics V and VIa.)
English Classics, 5	(Literature IX.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
*Government in State and Nation, 2	(Civics I.)
Free-Hand Drawing, 2	(Mechanical Engineering XIX.)

Freshman Year.

FIRST SEMESTER.

Algebra and Plane Trigonometry, 5	(Mathematics XX and XXI.)
French, 3 or	(Language XVIII.)
German, 3 or	(Language XX.)
Spanish, 3	(Language XXXVI.)
Narration and Description, 3	(English X.)
General Chemistry, 3	(Chemistry XLI.)
Shop Work, 2	(Mechanical Engineering XXIX or XXX.)
Technical Lecture	(Mining Engineering I.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Military Drill	(Military I.

SECOND SEMESTER.

Trigonometry and Analytic Geometry, 5	(Mathematics XXII and XXIII.)
French, 3 or	(Language XIX.)
German, 3 or	(Language XXI.)
Spanish, 3	(Language XXXVII.)
Exposition, 3	(English XI.)
General Chemistry, 3	(Chemistry XLII.)
Shop Work, 2	(Mechanical Engineering XXIX or XXX.)
Technical Lecture	(Mining Engineering Ia.)
Descriptive Geometry, 2	(Civil Engineering IVa.)
Military Drill	(Military II.)

---

*Elective but students are urged to take this work.

Sophomore Year.

FIRST SEMESTER.

Plane Analytic Geometry and Calculus, 5	(Mathematics XXIV and XXV.)
Argumentation, 2	(English XII.)
Qualitative Analysis, 3	(Chemistry XLIII.)
Mechanics and Heat, 5	(Physics III.)
Surveying, 2	(Civil Engineering XLV.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIa.)
*The American People, 1	(History XVII.)
Military Drill	(Military III.)

SECOND SEMESTER.

Differential and Integral Calculus, 4	(Mathematics XXVI.)
Elementary Quantitative Analysis, 4	(Chemistry XLVI.)
Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
Surveying, 2	(Civil Engineering XLVI.)
Analytical Mechanics, 2	(Mechanical Engineering Ib.)
Mechanical Drawing, 1	(Mechanical Engineering XXIIb.)
*American Statesmen, 1	(History XVIII.)
Military Drill	(Military IV.)
**Summer Field Work, 2 weeks	(Mining Engineering XII.)

Junior Year.

FIRST SEMESTER.		SECOND SEMESTER.	
Mechanics	5	Mechanics	5
Ceramic Chemistry	5	Ceramics	5
Engineering Laboratory	1	Engineering Laboratory	1
Physical Laboratory	1	Metallurgy	3
Structural Engineering	2	General Geology	4
Materials of Construction	3	Seminar	1
Seminar	1		

---

*To be taken in Sophomore or Junior year.
**See note under Mining Engineering, page 185.

Senior Year.

FIRST SEMESTER.		SECOND SEMESTER.	
Ceramics	1	Ceramics	5
Seminar	1	Economic Geology	4
Engineering Laboratory	1	Constructive Engineering	3
Specifications and Contracts	1	History of Engineering	1
Petrology	4	Thesis	4
Ceramics	5	Seminar	1
Ceramic Chemistry	5		

Two Year Course in Clay Working.

The short course in clay-working is designed to accommodate men already engaged in practice who may not have at their disposal sufficient time to take the four year course or who may not have had the opportunity to prepare themselves to meet the entrance requirements to the long course. It aims to equip such persons for advancement by presenting the essential principles of the various operations involved in the production of clay wares. The several subjects treated in this course are arranged in sequential order and as far as possible the principles discussed in the classroom are verified in the laboratory and the field. The preliminary studies of the first year are essential as a foundation for the understanding and prosecution of the more specialized work of the last two semesters. This course is planned to render the same sort of service to clayworkers as does the two year course in Mining Engineering to practical miners.

TWO YEAR COURSE IN CLAY WORKING.

First Year.

FIRST SEMESTER.

Algebra, 5	(Mathematics III.)
Plane Geometry, 5	(Mathematics V.)
Elementary Experimental Chemistry, 5	(Chemistry XXI.)
Mechanical Drawing, 2	(Mechanical Engineering XXI.)
Shop Work, 2	(Mechanical Engineering XXIX and XXX.)
Technical Lecture	(Mining Engineering I.)

---

*The course in Ceramics for the last two years is provisional, depending upon the final revision of the Engineering Course.

SECOND SEMESTER.

Solid Geometry and Plane Trigonometry, 5	(Mathematics VI.)
Elementary Experimental Chemistry, 5	(Chemistry XXIII.)
Ceramics, 4	(Ceramics IV.)
Drawing, 2	(Civil Engineering IVa.)
Shop Work, 2	(Mechanical Engineering XXIX and XXX.)
Technical Lecture	(Mining Engineering Ia.)

Second Year.

FIRST SEMESTER.

Ceramic Chemistry, 5	(Ceramics I.)
Ceramics, 5	(Ceramics V.)
Mechanics and Heat, 5	(Physics III.)
Seminar, 1	(Mining Engineering VI.)

SECOND SEMESTER.

Ceramic Chemistry, 5	(Ceramics II.)
Ceramics, 5	(Ceramics VI.)
General Geology, 4	(Geology II.)
Surveying, 2	(Civil Engineering)
Seminar, 1	(Mining Engineering VII.)
Mechanical Drawing, 2	(Mechanical Engineering XXII.)

COURSES IN CERAMICS.

I. Ceramic Chemistry. Required first semester Junior year in Ceramics and first semester second year in Two Year course in Clay Working. Quantitative analysis of raw materials used in the clay and cement industries. Especial attention is given to silicate minerals, beginning with those of simpler composition and progressing as far as possible in the analysis of the more complex clays, feldspar, etc. Five hours credit. Recitations, two hours and three laboratories per week.

II. Ceramic Chemistry. Required first semester Senior in Ceramics and second semester second year in Two Year course in Clay Working. Course I continued. Rational analysis of clays and pottery bodies, chemical calculations. Five hour credit. Two recitations and three laboratories per week.

III. Ceramic Chemistry. Required second semester Senior in Ceramics. Quantitative analysis and compounding of bodies, glazes and cements. Four hours credit. Two recitations and two laboratories per week.

IV. Ceramics. Required second semester Junior in Ceramics, and second semester first year in Two Year course in Clay Working. Classification, properties and methods of winning clays and other materials used in the ceramic industries. Laboratory work in clay testing accompanying. Five hours in course in Ceramics and four hours in course in Clay Working.

V. Ceramics. Required first semester Senior year in Ceramics and first semester second year in Two Year course in Clay Working. Manufacture of clay wares, including preparation of the clay, formation of the ware, drying and burning. Five lectures per week.

VI. Ceramics. Required second semester Senior year in Ceramics and second semester second year in Two Year course in Clay Working. Manufacture and technique of glazes, enamels, cements, and cement products. Five hours credit. Three recitations and two laboratories per week.

VII. Ceramics. Required first semester Senior year in Ceramics. Visits to important clay and cement working centers. Careful study and written reports on the plants inspected. One hour credit.

ENGINEERING EXPERIMENT STATION

ENGINEERING EXPERIMENT STATION

Engineering Experiment Station Staff.

A. B. STORMS, A. M., D. D.,
President Ex-officio.
A. MARSTON, C. E.,
Director.
Civil Engineering.
G. W. BISSELL, M. E.,
Mechanical Engineering.
L. B. SPINNEY, B. M. E., M. S.,
Electrical Engineering.
S. W. BEYER, B. S., PH. D.,
Mining Engineering.
W. H. MEEKER, M. E.,
Mechanical Engineering.
A. A. BENNETT, M. S.,
Chemist.
C. E. ELLIS, M. S. A.,
Assistant Chemist.

THE ENGINEERING EXPERIMENT STATION.

While the principal business of the several Engineering departments of the College is perhaps to give instruction to their students, the fact is recognized that the state contributes largely to the financial support of the College and that in return, not only should the College give tuition to the youth of Iowa, but it should contribute as much as possible to the successful carrying on of the industrial interests of the state. By the establishment of experiment stations the national government has recognized the duty of the land grant colleges to the agricultural interests. The Engineering departments of this College believe that it is their proper business to aid the other industrial enterprises of the state.

With this thought as the motive, the several Engineering departments have undertaken during the past ten years and will continue in the future to undertake to carry on investigations of interest and value to the industries of Iowa, as need therefor may arise, in so far as the funds available will permit. A number of pamphlets and bulletins giving the results of some of these investigations have already been published, and have been received with much favor by the people of the state. By strong resolutions numerous industrial and public organizations in Iowa have expressed their approval of this work.

In recognition and furtherance of this work the 31st General Assembly has appropriated a specific annual sum for the establishment of an Engineering Experiment Station, for carrying on and publishing bulletins of investigations of value to the industrial and municipal interests of Iowa.

Work of the Engineering Experiment Station.

One of the most important lines of investigation already undertaken is sewage disposal. The first sewage disposal plant in Iowa was constructed at the College in 1898 and has been in highly successful operation ever since. The authorities of many cities in the state have visited it. The College is continually carrying on investigations in sewage disposal, both with the large plant and with smaller experimental plants. Among the special subjects now being investigated may be mentioned those of the disposal of creamery sewage, and small plants, built for less than $100 each, for disposing of the sewage of private houses.

In addition a representative of the Engineering Experiment Station each year visits all the sewage disposal plants of the state, making tests of the efficiency and securing the data of the operation of the plants. Each year the results of these examinations and of the other investigations are published in the bulletin for free distribution.

Another line of investigation has been tests of building materials, which have also been under way for several years. Thousands of such tests, of all kinds of building materials in Iowa, have been made and the results published for the benefit both of the manufacturers and the consumers of the state.

Investigations helpful to the clay interests of the state have been under way for some years, and additional equipment is being put in for this work. Opportunity is provided whereby anyone can send to the Experiment Station samples of clay, to be tested as to suitability for material for brick, tile or other clay wares.

During the past year the Mining Engineering Section of the Station has been engaged in careful investigation of cement materials of the state. A very large number of samples of materials have been sent in from different parts of the state and have been carefully analyzed and studied as to their availability as cement materials. This work has been done in co-operation with the State Geological Survey.

The investigations of Iowa coals have been of much value to the manufacturers and to the mining interests of the state, as has been shown by the large demand for the bulletin already published. This work is being continued and largely extended.

It is planned to conduct a statistical inquiry of the power plants of the state, with personal examination of each plant and study its conditions. The results of this investigation will be helpful in suggesting improvements in methods and systems in Iowa power plants.

Careful tests of electric lamps have been made a special feature of the Engineering Experiment Station work. Any city or corporation can now send its lamps to the station (which has been made the official testing station of the Iowa Electrical Association) and have careful tests of efficiency, candle power and durability made at short notice and slight cost, and thus determine whether it is getting proper return for the money paid for its lamps. Many such lamps are being sent in, and in addition special investigations along this line are being conducted, the results of which will be published in bulletin form.

An investigation of the properties of Iowa limes as compared with those from other states is now nearly completed.

A bulletin on Iowa water works is well along.

Investigations for a bulletin on sewerage, water, and plumbing regulations for Iowa cities are also far advanced.

The above is only a part of the work done or planned by the Engineering Experiment Station.

TESTS OF MATERIALS.

More and more the cities and other public bodies of the state, together with private corporations, are sending in samples of various materials to be tested in the laboratories of the Engineering Experiment Station.

Many places are having their cements tested to see whether they are up to specifications.

The same is true of brick, both for paving and building purposes.

Steel, iron, stone, wood and other materials of construction can be sent in for test to advantage.

Users of cement are sending samples of their sands for tests, to select the best.

Many samples of clay are received for analysis, test, and report as to value.

Ores are received for assaying work.

Coal can be sent in for test of its calorific value for fuel, and the absence of deleterious elements.

Electric lamps are being sent in by many cities and corporations for test to decide whether they are up to the representations on which they were bought.

All such testing work for the people of Iowa is done at bare cost. We invite further work of this kind, and promise our best efforts to be of assistance to all residents of the state along these and similar lines.

LIST OF ENGINEERING EXPERIMENT STATION BULLETINS.

Bulletin No. 1.—The Iowa State College Sewage Disposal Plant and Investigations. (Now out of print.) This bulletin describes the college plant, the first in the state, and gives the results of the first year of operation, including bacterial and chemical analysis. 21 pgs., 6 cuts.

Bulletin No. 2.—Bacteriological Investigations of the Iowa State College **Sewage.** Results from Sept. 1, 1899, to Sept. 1, 1900. 22 pgs.

Bulletin No. 3.—Data of Iowa Sewage and Sewage Disposal. This bulletin gives a number of gaugings and analyses of Iowa sewage from different towns, and of various kinds, together with the detailed results of the operation of the college sewage disposal plant from May, 1900, to May, 1901. 27 pgs., 5 cuts.

Bulletin No. 4.—Bacteriological Investigations of the Iowa State College Sewage Disposal Plant. Results from 1898 to 1902. 19 pgs., 3 plates.

Bulletin No. 5.—The Chemical Composition of the Sewage of the Iowa State College Sewage Disposal Plant. Results from 1898 to 1902. 11 pgs.

Bulletin No. 6.—Tests of Iowa Common Brick. This bulletin gives the results of several hundred tests of seven different varieties of common brick manufactured in Iowa. Crushing, transverse breaking, absorption and freezing and thawing tests are given in each case. 23 pgs., 28 cuts.

Bulletin No. 7.—Sewage Disposal in Iowa. This bulletin gives detailed descriptions, usually with plans, of all sewage disposal plants in Iowa up to December, 1903, with the history of sewage disposal in the state, and full details of the operation of the several plants, including chemical and bacterial tests of efficiency. This paper was awarded the Fuertes Medal by Cornell University, June, 1904, and the Chanute Medal of the Western Society of Engineers for 1903.

Bulletin No. 8.—This bulletin gives the results of several hundred tests of seven varieties of dry press brick commonly used in Iowa. Crushing, transverse breaking, absorption and freezing and thawing tests are given in each case. 19 pgs., 8 cuts.

Bulletin No. 9.—Notes on Steam Generation with Iowa Coal. This bulletin gives a summary of a number of analyses of Iowa coal and tests of their heating power together with a discussion of the special difficulties encountered in burning Iowa coals and the best methods of overcoming these difficulties. 16 pgs., 3 cuts.

Bulletin No. 10.—Dredging by the Hydraulic Method, by George W. Catt, President of the Atlantic, Gulf and Pacific Dredging Co.

Bulletin No. 11.—An Investigation of Some Iowa Sewage Disposal Systems, by L. H. Pammel and J. B. Weems.

At this point the form of the bulletin was changed to a periodical published six times a year and the system of numbering the issues was changed accordingly.

Volume II, No. 6.—The Good Roads Problem in Iowa. This was the first bulletin published by the Iowa State Highway and it gives a general discussion of the good roads problem in Iowa with instructions for building concrete culverts and for making King road drags.

Volume III, No. 1.—Tests of Cement. This bulletin gives a general discussion of the properties of cement, together with the results of several hundred tests made in the laboratory of the Engineering Experiment Station. Standard specifications for cement are also given.

Volume III, No. 2.—State Railroad Taxation. This is a discussion by Professor F. C. French, Associate Professor of Railway Engineering at the Iowa State College, on the different methods which are employed in taxing railways.

Volume III, No. 3.—Steam Generation With Iowa Coals. This bulletin reports the results of a number of investigations on mechanical stokers with Iowa coals, together with a summary of the results of the government tests on Iowa coals, hand fired. By Professors G. W. Bissel and W. H. Meeker.

Volume III, No. 4.—Incandescent Lamp Testing. This bulletin gives a comparison of the various kinds of incandescent lamps which are on the market, with respect to their initial candle powers and efficiencies and a determination of the ratio between the mean spherical and horizontal candle powers.

Volume III, No. 5.—Steam Pipe Covering Tests, with a special object of determining the value of steam pipe coverings of varying thicknesses, based upon the results of these tests and compiled by Professor Wilson.

Volume III, No. 6.—Assessments of Drainage Districts. This bulletin gives a detailed discussion by an experienced drainage engineer of proper method in accordance with Iowa law, assessing cost of drainage improvements upon the property owners of the district in proportion to the benefits. The bulletin is by Professor L. E. Ashbaugh.

Volume IV, No. 1.—Tests of Iowa Limes.

Volume IV, No. 2.—Asphalt Paving in Iowa.

Volume IV, No. 3.—Sewerage Disposal in 1904-6.

Any of the above bulletins can be obtained by writing A. Marston, Director, Ames, Iowa.

IOWA STATE HIGHWAY COMMISSION.

A. MARSTON.
C. F. CURTISS.
Directors.
THOS. H. MACDONALD,
Highway Engineer.
J. B. DAVIDSON,
Engineer of Road Machinery.

Establishment of the Commission.

By act of the 30th General Assembly the College was constituted the State Highway Commission of Iowa and a small appropriation was made for road investigation and experimentation. It was made the duty of the Commission to obtain data from the counties and townships relating to road conditions; to furnish expert assistance to the several counties when called upon by the proper county officials; to prepare standard plans and specifications for road and bridge work, and to conduct each year a school of instruction for road workers at the College.

The 31st General Assembly increased the appropriation for the work and placed it on an annual basis.

Work of the Commission.

Since July, 1904, the Commission has been actively engaged in carrying out the provisions of the law as outlined above. A large amount of general and detailed information has been collected in various ways. In the 1905 census a supplementary card called the Agricultural Road Schedule was added and in this way complete detailed figures secured of the amount of traffic over the country roads from each farm. The results from several counties which have been worked up so far give promise of amazing totals for the entire state.

A number of tests of both stone and gravel for road material have been made in the Road Materials Laboratory and these tests will be continued to cover all the principal deposits in the state. Such material when sent in by road officials is tested free of charge. There has been a considerable demand for both the standard cross sections of roads and the plans of concrete bridges which have been developed by the Commission. No attempt, however, is made to make certain standard structures fit all places and whenever it is necessary a personal visit is made to the county and plans made after all information available has been secured.

Quite a representative line of machinery has been placed at the College by the companies manufacturing the different kinds. Short stretches of experimental gravel and stone roads have been constructed.

School of Instruction for Road Officers.

The first school for road officers was held in June, 1905, and the second in August, 1906. This year the school will probably be held in September. Regular instruction is given in road surveying, culvert and bridge building, road laws, and such subjects as are of pertinent interest to road men generally. Each county and township board is urged to pay the expenses of at least one representative as it is felt the experience gained and the new ideas acquired will prove of much value in the local work.

Bulletins Published.

Such material as was of value has been incorporated in the various publications of the Commission.

"The Good Roads Problem in Iowa" took up the subject from a broad general standpoint. It points out the general ways in which the road money is handled and the saving that could be effected with some system applied to this work. This bulletin was issued before much detailed information was available.

"The Manual for Highway Officers" is a 102-page booklet, containing a digest of the road laws; information in regard to the general topographic features as they affect road building; ways and methods of road building and maintenances and plans and instructions for the use of concrete in culverts and bridges.

"The Annual Report of the Iowa Highway Commission, 1904-5." A pamphlet of 75 pages giving a detailed report of the operations of the Commission with an itemized statement of expenditures. The subjects for legislation were also discussed.

"1906 Revision, Manual for Highway Officers." The Manual was revised entirely in 1906 and much new material added. The new material added is chiefly along the lines of road construction and the use of concrete.

"1907 Report." The second annual report is now in the hands of the printer and will soon be issued. The general subjects are the same as for the first report.

All of these publications can be obtained by writing to the Commission.

The aim of the Highway Commission is to build up an engineering and advisory bureau to furnish practical aid to the counties and at the same time to carry on experiments and demonstrations of educational and scientific value. So far the work has been developing very encouragingly and the same idea has been taken up in several other states having the state college act in this capacity.

DIVISION OF SCIENCE AS RELATED TO THE INDUSTRIES

DIVISION OF SCIENCE AS RELATED TO THE INDUSTRIES

Many of the courses of study taught in this Division form a very essential part of those belonging to the other Divisions, so that the work required for the various degrees conferred by the College authorities is very thoroughly interwoven.

The object of the work in this Division is very comprehensively expressed in the act of Congress establishing this and similar colleges. The founding of these colleges on a basis of scientific learning has proved to be the beginning of an important epoch in educational history. The courses of study in this Division are less technical than are many of those of the other Divisions. The real advances in modern civilization have been along the lines of science study and investigations. It is the intent therefore to lay a broad foundation in scientific facts and principles in order to fit the graduate to fill his place in the affairs of the world. There can be no better preparation for the duties of life and for citizenship than the knowledge and mental training given by a genuine study of the sciences.

During the first two years the lines of study are well marked out and but little choice of subjects is given. The required mathematics end with the Freshman year. The subject may be pursued, however, during the remainder of the course, provided the student desires and is qualified to do so.

The various branches of the study of the English language extending throughout the Freshman and Sophomore years are sufficient in scope and purpose to give the needed training in the use of English. The modern languages, namely, French, German and Spanish are great storehouses of the sciences, and consequently courses of study in these languages are offered to the student in the earlier years of his work to enable him to use these languages in the last two years of his study. The study of the sciences is strongly supported by work in literary, historical and psychological lines.

The course in Science leads to the degree of Bachelor of Science (B. S.).

The course in General and Domestic Science leads to the degree of Bachelor of Science (B. S.).

The course in Domestic Science leads to the degree of Bachelor of Domestic Science (B. D. S.).

Division of Science as Related to the Industries.

COURSE IN SCIENCE.

(For Men and Women)

Academic Course.

The studies of the Academic Course may be taken in either semester, with the exception of Mechanical Engineering XIXa and Civics I.

FIRST SEMESTER.

Algebra, 5	(Mathematics I.)
Grammar, 5	(English I.)
English History, 5	(History I.)
Elementary Botany, 2	(Botany I.)
Government in State and Nation, 2	(Civics I.)

SECOND SEMESTER.

Algebra, 5	(Mathematics II or III.)
Rhetoric and Composition, 5	(English II.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
Free-Hand Drawing, 2	(Mechanical Engineering XIXa.)

THIRD SEMESTER.

Plane Geometry, 5	(Mathematics V.)
English Classics, 5	(Literature IX.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
Advanced American History, 4	(History II.)

Freshman Year.

FIRST SEMESTER.

College Algebra, 5	(Mathematics IV.)
Ecology, 2	(Botany II.)
French, 5 or	(Language III.)
German, 5 or	(Language VII.)

Spanish, 5	(Language XXXII.)
Physiography, 3	(Geology I.)
Narration and Description, 3	(English X.)
**Plain Sewing, 2 (for women)	(Domestic Economy I.)
Military Drill, (for men)	(Military I.)
Marching Tactics, (for women)	(Physical Culture I.)
Library Work, 4 hours per semester	(Library I.)

SECOND SEMESTER.

Solid Geometry and Plane Trigonometry, 5	(Mathematics VI.)
Vegetable Histology, 4	(Botany III.)
French, 5 or	(Language IV.)
German, 5 or	(Language VIII.)
Spanish, 5	(Language XXXIII.)
Gesture and Voice, 1	(Public Speaking II.)
Exposition, 3	(English XI.)
*Garment Work, 2 (for women)	(Domestic Economy IV.)
Military Drill, (for men)	(Military II.)
Calisthenics, (for women)	(Physical Culture II.)

Sophomore Year.

FIRST SEMESTER.

***Plane Analytic Geometry, 5	(Mathematics VIII.)
***Cryptogamic Botany, 5	(Botany IV.)
***General Zoology, 5	(Zoology II.)
Mechanics and Heat, 5	(Physics III.)
French, 5	(Language XXII.)
German, 5 or	(Language XXIV.)
Spanish, 5	(Language XXXIV.)
****Dressmaking, 2 (for women)	(Domestic Economy VI.)
Military Drill, (for men)	(Military III.)
Light Apparatus, (for women)	(Physical Culture III.)

SECOND SEMESTER.

Differential and Integral Calculus, 5 or	(Mathematics IX.)
General Zoology, 5	(Zoology III.)

**Elective.
*Elective if preceded by D. E. I.
***The student shall elect two of these studies.
****Elective if preceded by D. E. I. and IV.

Electricity and Magnetism and Light and Sound, 5	(Physics IV.)
French, 3 or	(Language XXIII.)
German, 3 or	(Language XXV.)
Spanish, 3	(Language XXXV.)
General Chemistry, 5	(Chemistry II.)
Argumentation, 2	(English XII.)
**Dressmaking and Basketry, 2 (for women)	(Domestic Economy VII.)
Military Drill, (for men)	(Military IV.)
Swedish Gymnastics, (for women)	(Physical Culture IV.)

Junior Year.

Either at the beginning of the Junior year or not later than the end of the first semester of that year candidates for the degree of Bachelor of Science in the Science and General and Domestic Science courses must select a science which shall constitute a major line of study throughout the Junior and Senior years. This work shall occupy not less than three hours per week during any one semester. The total number of hours of the major subject, however, shall not be less than sixteen hours during the two years. In addition to the work in the chosen line of study, or the major subject, the student may be required to choose at the proper time during the two years from five to ten hours of courses that are requisite to the proper development of this work. The line of study with the additional study requisite to it are to be decided upon after consultation with the Dean of Science and the Head of the Department in which the line of work is taken. The major science shall be chosen from among the following named sciences: Botany, Zoology, Physics, Economic Science, Mathematics, Geology and Chemistry. The remainder of the total sixty-four to eighty hours required shall be selected from among all the courses offered on consultation with the Dean of Science and the Heads of the Departments in which the work may be selected and is otherwise unrestricted. Not later than the beginning of the second semester of the Junior year these courses shall be made out on blanks furnished at the Dean's office and a copy left on file there. These outlines of study shall consist of the special line of study and the subjects requisite to it and enough other subjects to make ten to fifteen hours work. The remainder may be filled in at the beginning of each semester. The outline as placed on file cannot be changed without the special permission of the faculty.

FIRST SEMESTER.

(Elective)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Advanced Public Speech, 1 (Public Speaking VIII.)

(Elective)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

**Elective if preceded by D. E. I., IV and VI.

Senior Year.

FIRST SEMESTER.

(Required)

Oration, 1 or	(Public Speaking IX.)
Extempore Speech, 2	(Public Speaking X.)

(Elective)

Enough work will be selected from the list of electives given on page . . . to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Elective)

From sixteen to twenty hours per week will be selected from the list of electives given on page 222

COURSE IN GENERAL AND DOMESTIC SCIENCE.

(For Women Only).

For Academic Course, see Page 211.

Freshman Year.

FIRST SEMESTER.

College Algebra, 5	(Mathematics IV.)
Ecology, 2	(Botany II.)
French, 5 or	(Language III.)
German, 5 or	(Language VII.)
Spanish, 5	(Language XXXII.)
Plain Sewing, 2	(Domestic Economy I.)
Narration and Description, 3	(English X.)
Actual Government, 2	(Civics VI.)
Marching Tactics,	(Physical Culture I.)

SECOND SEMESTER.

Solid Geometry and Plane Trigonometry, 5	(Mathematics VI.)
Vegetable Histology, 4	(Botany III.)
French, 5 or	(Language IV.)
German, 5 or	(Language VIII.)
Spanish, 5	(Language XXXIII.)
Garment Work, 2	(Domestic Economy IV.)
Gesture and Voice, 1	(Public Speaking II.)
Exposition, 3	(English XI.)
Calisthenics,	(Physical Culture II.)

Sophomore Year.

FIRST SEMESTER.

Plane Analytic Geometry, 5 or	(Mathematics VIII.)
The Drama, 5	(Literature V.)
Mechanics and Heat, 5	(Physics I.)
French, 5 or	(Language XXII.)
German, 5 or	(Language XXIV.)
Spanish, 5	(Language XXXIV.)
Dressmaking, 2	(Domestic Economy VI.)
Europe in the XVIth, XVIIth, and XVIIIth Centuries, 3	(History V.)
Light Apparatus,	(Physical Culture III.)

SECOND SEMESTER.

Differential and Integral Calculus, 5 or	(Mathematics IX.)
Epic and Lyric Poetry, 5	(Literature II.)

Electricity and Magnetism and Light and Sound, 3	(Physics II.)
French, 3 or	(Language XXIII.)
German, 3 or	(Language XXV.)
Spanish, 3	(Language XXXV.)
Elementary Chemistry, 5	(Chemistry XXII.)
Dressmaking and Basketry, 2	(Domestic Economy VII.)
Argumentation, 2	(English XII.)
Swedish Gymnastics,	(Physical Culture IV.)

Junior Year.

Either at the beginning of the Junior year or not later than the end of the first semester of that year, candidates for the degree of Bachelor of Science in the Science and General and Domestic Science courses, must elect a science which shall constitute a major line of study throughout the Junior and Senior years. This work shall occupy not less than three hours per week during any one semester. Tho total number of hours of the major subject, however, shall not be less than sixteen hours during the two years. In addition to the work in the chosen line of study or the major subject, the student may be required to choose at the proper time during the two years from five to ten hours of courses that are requisite to the proper development of this work. The line of study with the additional study requisite to it are to be decided upon after consultation with the Dean of Science and the Head of the Department in which the line of work is taken. The major science shall be chosen from among the following named sciences: Botany, Zoology, Physics, Economic Science, Mathematics, Geology and Chemistry. The remainder of the total sixty-four to eighty hours required shall be selected from among all the courses offered on consultation with the Dean of Science and the Heads of the Departments in which the work may be selected, and is otherwise unrestricted. No later than the beginning of the second semester of the Junior year, these courses shall be made out on blanks furnished at the Dean's office and a copy left on file there. These outlines of study shall consist of the special line of study and the subjects requisite to it and enough other subjects to make ten to fifteen hours of work. The remainder may be filled in at the beginning of each semester. The outline as placed on file cannot be changed without the special permission of the faculty.

FIRST SEMESTER.

(Required)

Foods, 2	(Domestic Economy II.)
Elementary Applied Chemistry, 5	(Chemistry XXIV.)
Public Speech, 2	(Public Speaking VII.)

(Electives)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Foods, 2	(Domestic Economy V.)
French Revolution and XIXth Century, 3	(History VI.)
Advanced Public Speech, 1	(Public Speaking VIII.)

(Electives)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

Senior Year.

FIRST SEMESTER.

(Required)

Advanced Cookery, 1	(Domestic Economy XX.)
Dietaries, 1	(Domestic Economy XXIV.)
D. E. Extempore Speech, 2	(Public Speaking XV.)

(Electives)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

SECOND SEMESTER.

(Required)

Demonstration Work, 1	(Domestic Economy XXI.)
Home Management, 1	(Domestic Economy XXIII.)

(Electives)

Enough work will be selected from the list of electives given on page ... to make a total of from sixteen to twenty hours per week.

COURSE IN DOMESTIC SCIENCE.

(For Women Only)

For Academic Course, see Page 211.

Freshman Year.

FIRST SEMESTER.

Plain Sewing, 2	(Domestic Economy I.)
College Algebra, 5	(Mathematics IV.)
Ecology, 2	(Botany II.)
French, 5 or	(Language III.)
German, 5 or	(Language VII.)
Spanish, 5	(Language XXXII.)
Narration and Description, 3	(English X.)
Actual Government, 2	(Civics VI.)
Marching Tactics,	(Physical Culture I.)

SECOND SEMESTER.

Garment Work, 2	(Domestic Economy IV.)
Solid Geometry and Plane Trigonometry, 5	(Mathematics VI.)
Vegetable Histology, 4	(Botany III.)
French, 5 or	(Language IV.)
German, 5 or	(Language VIII.)
Spanish, 5	(Language XXXIII.)
Gesture and Voice, 1	(Public Speaking II.)
Exposition, 3	(English XI.)
Calisthenics,	(Physical Culture II.)

Sophomore Year.

FIRST SEMESTER.

Dressmaking, 2	(Domestic Economy VI.)
Plane Analytic Geometry, 5 or	(Mathematics VIII.)
The Drama, 5	(Literature V.)
Mechanics and Heat, 5	(Physics I.)
French, 5 or	(Language XXII.)
German, 5 or	(Language XXIV.)
Spanish, 5	(Language XXXIV.)
Europe in the XVIth, XVIIth and XVIIIth Centuries, 3	(History V.)
Light Apparatus,	(Physical Culture III.)

SECOND SEMESTER.

Dressmaking and Basketry, 2	(Domestic Economy VII.)
Differential and Integral Calculus, 5 or	(Mathematics IX.)

Epic and Lyric Poetry, 5	(Literature II.)
Electricity and Magnetism and Light and Sound, 3	(Physics II.)
French, 3 or	(Language XXIII.)
German, 3 or	(Language XXV.)
Spanish, 3	(Language XXXV.)
Elementary Chemistry, 5	(Chemistry XXII.)
Argumentation, 2	(English XII.)
Swedish Gymnastics,	(Physical Culture IV.)

Junior Year.

FIRST SEMESTER.

Foods, 2	(Domestic Economy II.)
*Laundry Work, 1	(Domestic Economy VIII.)
*Theory of Teaching Domestic Art, 2	(Domestic Economy XIV.)
Home Sanitation, 1	(Domestic Economy XVI.)
Geography of Foods, 1	(Domestic Economy XXV.)
*School Methods, 1	(Domestic Economy XXXIII.)
Elementary Applied Chemistry, 5	(Chemistry XXIV.)
General Zoology, 5	(Zoology II.)
General Bacteriology, 2	(Botany XXXVIII.)
Floriculture, 2	(Horticulture XI.)
Public Speech, 2	(Public Speaking VII.)

SECOND SEMESTER.

Foods, 2	(Domestic Economy V.)
Home Sanitation, 1	(Domestic Economy XVII.)
Sickroom Cookery and Home Nursing, 1	(Domestic Economy XXII.)
Geography of Foods, 1	(Domestic Economy XXVI.)
Theory of Teaching Domestic Art, 2	(Domestic Economy XXXII.)
*School Methods, 1	(Domestic Economy XXXIV.)
Organic Chemistry, 5	(Chemistry IX.)
General Zoology, 5	(Zoology III.)
Fermentations, 2	(Botany XXXV.)
French Revolution and the XIXth Century, 3	(History VI.)

Senior Year.

FIRST SEMESTER.

Theory of Teaching Domestic Science, 2	(Domestic Economy IX.)
History of Art, 2	(Domestic Economy XI.)

---

*Elective.

Advanced Cookery, 1	(Domestic Economy XX.)
Dietaries, 1	(Domestic Economy XXIV.)
Household Accounts, 1	(Domestic Economy XXVII.)
Quantitative Analysis, 5	(Chemistry XI.)
Human Physiology, 5	(Zoology XII.)
D. E. Extempore Speech, 2	(Public Speaking XV.)
(Elective)	
Laundry Work, 1	(Domestic Economy VIII.)
Theory of Teaching Domestic Art, 2	(Domestic Economy XIV.)

*SECOND SEMESTER.

Theory and Practice of Teaching, 2	(Domestic Economy X.)
History of Art, 2	(Domestic Economy XII.)
Home Decoration, 1	(Domestic Economy XIII.)
Demonstration Work, 1	(Domestic Economy XXI.)
Home Management, 1	(Domestic Economy XXIII.)
Seminar, 1	(Domestic Economy XXX.)
Human Physiology, 5	(Zoology XIII.)
(Elective)	
Chafing Dish Cookery, 1	(Domestic Economy XXVIII.)
Dietaries, 1	(Domestic Economy XXXI.)
Theory of Teaching Domestic Art, 2	(Domestic Economy XXXII.)

Subjects which may be elected in the Junior or Senior years in the Science, General and Domestic Science, and Domestic Science courses, subject to the conditions governing admission to each course.

FIRST SEMESTER.

Subjects which count as science:

Cryptogamic Botany, 5	(Botany IV.)
Vegetable Pathology, 3 or 5	(Botany V.)
Advanced Non-vascular Cryptogams, 3	(Botany VI.)
Economic Botany, 2	(Botany X.)
Agrostology, 2	(Botany XIII.)
Seeds and Seed Testing, 2	(Botany XIV.)
Advanced Cryptogamic Botany, Ferns, 3	(Botany XVII.)
Botanical Seminar, 1	(Botany XVIII.)

---

*Enough work will be selected from the list of electives given on page — to make a total of from sixteen to twenty hours.

Evolution of Plants, 2	(Botany XIX.)
Botanical Drawing and Illustrating, 2	(Botany XXII.)
*General Bacteriology, 3	(Botany XXXII.)
Bacteriology of the Pathogenes, 4	(Botany XXXIV.)
Advanced Sanitary Bacteriology, 3	(Botany XXXVII.)
Qualitative Analysis, 5	(Chemistry V.)
Blow-Pipe Analysis and Assaying, 5	(Chemistry VII and VIII.)
Quantitative Analysis, 5	(Chemistry XI.)
Organic Chemistry, 5	(Chemistry XIV.)
Foods, 2	(Domestic Economy II.)
Laundry Work, 1	(Domestic Economy VIII.)
Home Sanitation, 1	(Domestic Economy XVI.)
**Advanced Cookery, 1	(Domestic Economy XX.)
**Dietaries, 1	(Domestic Economy XXIV.)
**Geography of Foods, 1	(Domestic Economy XXV.)
Outlines of Economics, 5	(Economic Science I.)
Economic Problems, 3	(Economic Science III.)
American Labor, 2	(Economic Science VII.)
General Geology, 5	(Geology II.)
Plane Analytic Geometry, 5	(Mathematics VIII.)
Differential Equations, 3	(Mathematics X.)
Spherical Trigonometry and Advanced Analytic Geometry, 5	(Mathematics VII and XV.)
Plane Analytic Geometry, 1	(Mathematics XXIV.)
Calculus, 4	(Mathematics XXV.)
Psychology, 5 (see Psychology III)	(Psychology I.)
***Theory and Practice of Photography, 2	(Physics IX.)
Physical Laboratory, 2 or	(Physics XIV.)
Physical Laboratory, 1	(Physics XIVa.)
Physical Laboratory, 2	(Physics XVI.)
General Zoology, 5	(Zoology II.)
General Entomology, 5	(Zoology IV.)
Embryology, 3 to 5	(Zoology V.)
Economic Entomology, 5	(Zoology IX.)
Morphology, 3 to 5	(Zoology X.)
Neurology, 3 to 5	(Zoology XI.)
Human Physiology, 5	(Zoology XII.)

---

*For General and Domestic Science students.

**Senior year only.

***Elective upon recommendation by head of department in which student is taking his major work.

General subjects.

Principles of American Government, 3 or	(Civics II.)
Comparative Government, 3	(Civics VII.)
Surveying, 4	(Civil Engineering VIII.)
History of Art, 2	(Domestic Economy XI.)
Household Accounts, 1	(Domestic Economy XXVII.)
Debating, 1	(English VII.)
National Development, 1815 to 1850, 3	(History III.)
Europe in the XVIth, XVIIth and XVIIIth Centuries, 3	(History V.)
The Renaissance, 2	(History X.)
Diplomatic History of the United States, 2	(History XII.)
Landscape Gardening, 3	(Horticulture VIII.)
Floriculture, 2	(Horticulture XI.)
French, 5 or	(Language I.)
German, 5 or	(Language V.)
Spanish, 5	(Language XXX.)
French, 5 or	(Language III.)
German, 5 or	(Language VII.)
Spanish, 5	(Language XXXII.)
English Drama, 3	(Literature I.)
American Literature, 3	(Literature IV.)
The Drama, 5	(Literature V.)
The Short Story, 2	(Literature VI.)
The Drama in Translation, 2	(Literature VIII.)
Military Science, 1	(Military V.)
Military Science, 1	(Military VII.)
Interpretation, 2	(Public Speaking III.)
Dramatic Art, 2 or	(Public Speaking V.)
Extempore Speech, 2	(Public Speaking X.)
Histology, 2	(Veterinary XXXIII.)

SECOND SEMESTER.

Subjects which count as science:

Vegetable Physiology, 3	(Botany XI.)
Vegetable Cytology, 4	(Botany XII.)
Systematic Phanerogams, 3 or 5	(Botany XV.)
Botanical Seminar, 1	(Botany XVIII.)
Botanical Microscopy and Micro-Chemistry, 3	(Botany XX.)

General Bacteriology, 4	(Botany XXX.)
Fermentations, 2	(Botany XXXV.)
Advanced General Bacteriology, 4	(Botany XXXVI.)
Organic Chemistry, 5	(Chemistry IX.)
Chemistry of the Household, 2	(Chemistry XVI and XVIa.)
Inorganic Preparations, 4 or	(Chemistry XXXI.)
Quantitative Analysis, 4 or	(Chemistry XXXII.)
Physiological Chemistry, 5	(Chemistry XXXVI.)
The Chemistry of Foods and Food Adulteration, 5	(Chemistry XLVII.)
Foods, 2	(Domestic Economy V.)
Home Sanitation, 1	(Domestic Economy XVII.)
*Demonstration Work, 1	(Domestic Economy XXI.)
Sickroom Cookery and Home Nursing, 1	(Domestic Economy XXII.)
*Home Management, 1	(Domestic Economy XXIII.)
*Geography of Foods, 1	(Domestic Economy XXVI.)
*Dietaries, 1	(Domestic Economy XXXI.)
Money and Banking, 2	(Economic Science IV.)
Finance, 3	(Economic Science V.)
Industrial History of the United States, 2	(Economic Science VI.)
Advanced Geology, 5	(Geology IV.)
Mineralogy, 3	(Geology VI.)
Differential and Integral Calculus, 5	(Mathematics IX.)
Advanced Differential Equations, 3	(Mathematics XI.)
Advanced Calculus, 4	(Mathematics XVI.)
Mathematical Analysis, 1	(Mathematics XVIII.)
Plane Analytic Geometry, 3	(Mathematics XXIII.)
Calculus, 4	(Mathematics XXVI.)
Physical Laboratory, 1	(Physics XIVb.)
Physical Laboratory, 1 or	(Physics XV.)
Physical Laboratory, 2	(Physics XVII.)
General Zoology, 5	(Zoology III.)
Evolution of Animals, 1	(Zoology VI.)
Comparative Anatomy, 5	(Zoology VII.)
Animal Parasites, 2	(Zoology VIII.)
Morphology, 3 to 5	(Zoology X.)
Human Physiology, 5	(Zoology XIII.)
Advanced Invertebrate Zoology, 3	(Zoology XIV.)

General Subjects:

State and Federal Government, 3	(Civics III.)

---

*Senior year only.

Citizenship, 2	(Civics IV.)
History of Art, 2	(Domestic Economy XII.)
Home Decoration, 1	(Domestic Economy XIII.)
*Chafing Dish Cookery, 1	(Domestic Economy XXVIII.)
Debating, 1	(English VIII.)
Division and Reunion, 1850 to 1876, 3	(History IV.)
French Revolution and XIXth Century, 3	(History VI.)
The Far Eastern Question, 2	(History IX.)
Constitutional History of England, 2	(History XI.)
French, 5 or	(Language II.)
German, 5 or	(Language VI.)
Spanish, 5	(Language XXXI.)
French, 5 or	(Language IV.)
German, 5 or	(Language VIII.)
Spanish, 5	(Language XXXIII.)
Epic and Lyric Poetry, 5	(Literature II.)
Novel and Romance, 3	(Literature III.)
The Essay, 2	(Literature VII.)
Military Science, 1	(Military VI.)
Military Science, 1	(Military VIII.)
Ethics, 3	(Psychology II.)
Advanced Psychology, 3 (Gives science credit).	(Psychology III.)
Advanced Interpretation, 2	(Public Speaking IV.)
Advanced Dramatic Art, 2 or	(Public Speaking VI.)
Advanced Extempore Speech, 2	(Public Speaking XI.)

DEPARTMENT OF MATHEMATICS.

EDGAR WILLIAM STANTON, PROFESSOR.
MISS MARIA ROBERTS, ASSOCIATE PROFESSOR.
MR. PATTENGILL AND MISS COLPITTS, ASSISTANT PROFESSORS.
MISS FLEMING, MR. JONES, MISS CRONIN AND MISS ANDERSON, INSTRUCTORS.

The work of the Department of Mathematics is directed to the following ends:

(1) **The Development of Intellectual Strength.**—Such a degree of thoroughness is required as awakens interest and stimulates to earnest effort. The work is so arranged as to compel the student to abandon the mere mechanical methods of reaching results. He can make little or no progress except through the mastery of principles and methods; and in their application there is demanded of him a high degree of in-

genuity, care and courage. He is subjected to the continuous discipline of holding details in mind, comparing facts, drawing conclusions and advancing to the discovery of new truth. He learns to think, judge, originate, and through his mathematical training gains mental strength.

(2) **Accuracy in Presentation of Mathematical Truths.**—The student is required not only to think clearly, but to put his thought into concise and precise English. In the explanation of examples he is asked to bring out and emphasize the principles involved, dealing in detail with such equations only as are necessary to this purpose. In the solution of problems an analysis of statement and equation must be given, definitions and theorems must be stated clearly and accurately and in the demonstration of propositions the use of correct language is considered as secondary only to the employment of correct logic.

(3) **The acquirement of such Command of the Subject Matter of Mathematics as will make it a Valuable Instrument in Higher Scientific and Technical Study.**—To this end an effort is made to eradicate from the student's mind the idea entertained by many, that mathematical truths are learned simply to be forgotten, and to awaken in its place an earnest desire to obtain a comprehensive and abiding knowledge of the essential facts of the science. Thoroughness in daily recitation is demanded, frequent reviews are given and final credits are made to depend largely upon the student's grasp of principles and the readiness and the accuracy with which he performs the simple and the complex operations involved in their application. Each branch as it is taken up is so presented as to require the constant employment of the principles and facts of the preceding mathematical studies. The Department aims in this way to give the student such a degree of mathematical maturity and self-reliant mastery as will enable him to use his mathematical knowledge with profit either in advanced collegiate work or as an instructor in our high schools and academies.

COURSES IN MATHEMATICS.

I. **Algebra to Involution.** Required first semester Academic in all Engineering and Science courses. For entrance to this course the student must have had thorough high school work in and be able to pass an examination in algebra, including addition, subtraction, multiplication, division, factoring, highest common factor, lowest common multiple, fractions, and simple equations containing one or more unknown quantities. Preparation in excess of this will be to the student's advantage. The review and advanced work of this course includes an exhaustive study of those subjects which in any standard text precede involution, the examples and problems being more difficult than those in the ordinary text book. Special stress is laid upon the statement of definitions and the demonstration of principles. Recitations, five hours per week.

II. Algebra, Involution to Ratio and Proportion. Required second semester Academic in Engineering and Science of those students who are not prepared to pursue work in Course III. Includes study of Involution of Monomials and Polynomials; Evolution, including the consideration of the higher roots of polynomials, and rules for determining the roots of numbers based upon the algebraic method of extracting roots; Radicals, including the fundamental operations, involution, evolution, rationalization, imaginary quantities, extracting the square root of binomial surds and the solution of equations involving radicals; Pure and Affected Quadratics; Equations solved like quadratics; and Simultaneous Quadratic Equations. Prerequisite, Course I. At the completion of this course students are expected to have such grasp of algebra through quadratics as will enable them to handle its principles up to this point without error and perform the operations required with rapidity and accuracy. Recitations, five hours per week.

III. Algebra to Ratio and Proportion. Required second semester Academic year in all Four year courses in Engineering and Science, first semester of first year in Two year courses in Ceramics and Mining Engineering and first semester Academic in all Agricultural courses. Includes same subjects as given in Courses I and II but taken in rapid review. The object aimed at is not elementary instruction in the science, but a wider grasp of principles and familiarity with their application in more difficult fields. Many of the examples assigned are such as are met with in the higher mathematics. The student is thus introduced to a quality of work demanding a broad view of principles and methods and a marked degree of skill in algebraic manipulation. Prerequisite, a thorough knowledge of algebra through simple equations—the course being intended for students who have completed algebra in the high school and who need a thorough review before entering upon advanced work. Admission is secured by examination or upon the certificate of the proper officer of an accredited high school. Recitations, five hours per week.

IV. College Algebra. Required first semester Freshman year in Science courses. Includes study of ratio, proportion, variation, the progressions, binomial theorem, convergency and divergency of series, theorem of undetermined coefficients including partial fractions, principles and logarithms, and the theory of equations. Prerequisites, Courses I and II or Course III. Also open to graduates of fully accredited high schools. The first ten days of the semester is devoted to a review of algebra up to and including quadratics. Students failing in this test will be assigned to such work as they are fitted to pursue.

Graduates of accredited schools are earnestly urged to carefully review their work in algebra before entering this course. The sample questions printed elsewhere in this catalogue give a good idea of the knowledge of the subject needed. The Department will gladly unite with the student and his school principal in arranging to test the thoroughness of his home review; such test can be given in connection with the work of the high school and if satisfactory to the Department, will be accepted in lieu of the review test at the College. The student can then begin his advanced work without delay. Students designing to take the review here must be present promptly at the opening of the semester. Correspondence regarding this whole matter is cordially invited.

Students not graduates of the fully accredited schools will be admitted to this course upon passing a satisfactory examination upon the work covered by Course III. Arrangements can be made with the principals of high schools or county superintendents to conduct such examinations. The principal of any school desiring to test the ability of his students to enter upon the work of this course will be furnished, upon request, a list of examination questions. The Department will be pleased to mark the examination papers and enter upon its records as accredited students in the Mathematical Department the names of all students who show that they are prepared to take up the work with success. Recitations, five hours per week.

V. Plane Geometry. Required third semester Academic in all four year Engineering and Science courses, second semester Academic in all Agricultural courses, and first semester of first year in two year courses in Ceramics and Mining Engineering. Includes subjects generally treated in a standard text, including fundamental definitions and axioms, theorems relating to rectilinear figures and the circle, measurement of angles; doctrine of limits; theory of proportion; similar polygons; comparison and measurement of the surfaces of rectilinear figures; measurement of the circle, and geometrical construction of plane figures. Text book, Phillips and Fisher. The proofs outlined must be fully amplified; definitions must be stated with precision; authority cited must be given in full and the logical steps in demonstration must be so arranged and presented as to constitute a complete and rigid proof. The student must understand each proposition and be able to state the demonstration in concise geometric language. Special emphasis will be laid upon the demonstration of original exercises. Prerequisite, Course I. Recitations, five hours per week.

VIa. Solid and Spherical Geometry. Required third semester Academic year in Engineering, second semester Freshman year in the Agricultural course, and second semester of first year in two year courses in Ceramics and Mining Engineering. Looking forward to this work the students immediately before leaving home should carefully go over the whole subject of plane geometry. The subjects considered in the course are the properties of planes, of diedral and polyedral angles, of prisms, of pyramids and other polyedrons, of cylinders, cones and spheres, of spherical triangles and spherical polygons. Prerequisites, Courses III and V. Two hours credit. Recitations, five hours per week the last six weeks of the semester, in Engineering courses, first six weeks in all other courses.

VIb. Plane Trigonometry. Required second semester Freshman year in Science, and second semester of first year in Two Year courses in Ceramics and Mining Engineering, elective second semester Junior or Senior year in all the Agricultural courses. The subjects investigated are definitions; positive and negative angles; circular measures of angles; operations upon angles; functions of angles, their relations and varying values; determination of values of the functions of particular angles; functions of different angles expressed in terms of those of a basal angle; derivation and reduction of trigonometric formulas; solution of right and oblique triangles. The points most strongly emphasized are: Care in tracing the trigonometric functions of varying angles in the different quadrants, readiness and skill in the derivation and reduction of trigonometric formulas and accuracy in the use of logarithomic tables. Prerequisites, Courses III, IV, V and VIa. Three hours credit. Recitations, five hours per week for last thirteen weeks of semester.

VII. Spherical Trigonometry. Required first semester Junior year in Civil Engineering, elective first semester Junior or Senior year in all Science courses. The spherical right triangle is investigated; triangles of reference are formed and formulas deduced therefrom; Napier's rules are applied; the six different cases arising in the solution of right triangles are discussed and illustrated by numerous examples. Spherical triangles in general are considered; the formulas relating thereto are derived and applied to the solution of examples; interesting problems connected with the celestial spheres are included in the course. Prerequisite, Course VI. Two hours credit. Recitations, five hours per week for first seven weeks of the semester.

VIII. Plane Analytic Geometry. Elective first semester Sophomore, Junior or Senior year in Science and Junior or Senior year in all Agricultural courses. The subject is taught largely from the standpoint of its value as a disciplinary study. Once the student is impressed with the spirit of its method, the beauty of its logic and the excellent field for analytical reasoning it opens up, he will readily find a way to a mastery of the particular facts it reveals. The student is introduced to the subject through a review of the special algebraic, trigonometric and geometric conceptions upon which it is based. These are applied to the analytic representation of points in a plane and the proposition established that all geometric lines and curves can be represented by equations, and their properties and relations discovered by a study of these equations. The line, the circle and the conic sections are in this way most carefully investigated. Examples involving principles are solved and from a knowledge of particular the student is led to the demonstration of general theorems. The generalized truth is then employed in the development of other truth, and thus the student is given a most excellent drill in both inductive and deductive reasoning. At the same time his needs, as a scientific student, of a knowledge of the facts of analytic geometry are fully met. Text book, Analytic Geometry by Tanner and Allen of Cornell University. Prerequisites, Courses IV and VI. Recitations, five hours per week.

IX. Differential and Integral Calculus. Elective second semester Sophomore, Junior or Senior year in Science courses, Junior or Senior year in all Agricultural courses. All preceding mathematical work should be completed before this course is undertaken. Calculus bears to that work the double relation that, while it is based upon it and cannot be pursued successfully except as the work has been well mastered, it on the other hand, furnishes a most excellent opportunity for a general review of the preceding mathematical studies and gives to all that has gone before a significance and value which it would otherwise lack. It is therefore a most important part of any extended and thorough mathematical course. The abstruse principles of this higher method of mathematical investigation are explained upon the theory of limits. The theory of infinitesimals is also employed. In differential calculus the rules of differentiation, expansion of functions, indeterminate forms, tangents, normals and asymptotes, direction of curvature, points of inflection, radius of curvature, order of contact, the osculating circle, envelopes, singular points and maxima and minima of functions are studied. In integral calculus much time is spent in acquiring a usable knowledge of the forms of integration. Application of integration is then made to the determination of the lengths of plane curves, areas of plane surfaces and surfaces of revolution, volumes of solids of revolution and other solids. Recitations, five hours per week with a review of week's work each Friday.

X. Differential Equations. Required first semester Junior year in Electrical Engineering, elective first semester Junior or Senior in Science courses. Supplementary to integral calculus, including the formation of differential equations; solution of equations of the first order with applications to geometry, mechanics and physics. Prerequisite, Course IX. Recitations, three hours per week.

XI. Advanced Differential Equations. Elective second semester Junior or Senior year in Science courses. Includes study of the methods of handling linear equations with constant and variable coefficients; exact differential equations; integration in series; equations of the second order with geometrical, mechanical and physical applications; ordinary differential equations with more than two variables; partial differential equations of the different orders. Prerequisite, Course X. Recitations, three hours per week.

XIII. Advanced Algebra. Required second semester Academic year in the Agricultural course. Includes logarithms, ratio, proportion, variation, and binomial theorem. Prerequisite, Course III. Recitations, five hours per week during first four weeks of semester.

XV. Advanced Analytic Geometry. Elective first semester Junior or Senior year in Science courses. A study of the general equation of the second degree, higher plane curves, and analytic geometry of three dimensions. Prerequisites, Courses VIII and IX. Three hours credit. Recitations, five hours per week during last ten weeks of the semester.

XVI. Advanced Calculus. Elective second semester Junior or Senior year in Science courses. Deals with the application of differential calculus to the discussion of the properties of curves; the application of both differential and integral calculus to functions of a complex variable; and the subject of definite integrals and the use of double integration in measuring surfaces. The principles involved are illustrated by numerous examples. Prerequisites, Courses VIII and IX. Recitations, four hours per week.

XVIII. Mathematical Analysis. Elective second semester Junior or Senior year in Science courses. Consists of lectures on the principles involved in the previous Mathematical courses. Its main purpose is to emphasize those principles which are most important and to suggest methods of presenting them effectively in the class room, thus helping those who expect to teach in mathematical lines. Prerequisites, all previous courses. One lecture per week.

XX. College Algebra. Required first semester Freshman year in all four year courses in Engineering and Ceramics. Includes study of ratio, proportion, variation, the progressions, binomial theorem, convergency and divergency of series, theory of undetermined coefficients including partial fractions, principles and use of logarithms, and theory of equations. Prerequisites, same as for Course IV. Recitations, five hours per week during first twelve weeks of the semester.

XXI. Plane Trigonometry. Required first semester Freshman year in all four year courses in Engineering and Ceramics and elective first semester Junior or Senior year in all Agricultural courses. Includes study of definitions; positive and negative angles; circular measure of angles, functions of angles, their relation and varying values; determination of functions of different angles expressed in terms of those of a basal angle; solution of trigonometric equations and the proving of identities. Prerequisites, Courses III, XX, V and VIa. Recitations, five hours per week during last four weeks of the semester.

XXII. Plane Trigonometry. Required second semester Freshman year in all four year courses in Engineering and Ceramics, and elective Junior or Senior year in all Agricultural courses. Includes those subjects of the usual courses in trigonometry not included in Course XXI; namely, the derivation of the formulae relating to the sum and difference of two angles, functions of double angles and of half angles with identities and equations based upon these formulae and the solution of right and oblique triangles. Prerequisites, Courses XX and XXI. Recitations, five hours per week during first seven weeks of the semester.

XXIII. Plane Analytic Geometry. Required second semester Freshman year in all four year courses in Engineering and Ceramics, elective Junior or Senior year in all courses in Science and in Agriculture. The work covered is the first eight chapters in Tanner and Allen's Analytic Geometry. Prerequisites, Courses XX, XXI and XXII. Three hours credit. Recitations, five hours per week during last twelve weeks of the semester.

XXIV. Plane Analytic Geometry. Required first semester Sophomore year in all four year courses in Engineering and Ceramics, elective Junior or Senior in all courses in Science and in Agriculture. The work covered is chapters IX, X, XI in Tanner and Allen's Analytic Geometry. This course, together with Course XXIII which precedes it, covers the same ground as Course VIII. Prerequisite, Course XXIII. One hour credit. Recitations, five hours per week during first four weeks of semester.

XXV. Calculus. Required first semester Sophomore year in all four year courses in Engineering and Ceramics, elective Junior or Senior year in all Science courses. The work covers the rules of differentiation, together with numerous examples illustrating their use and a large number of problems showing the close relation of differential calculus to physics and mechanics, also its application to the expansion of functions and to indeterminate forms. In Integral Calculus, the rules of integration are derived and enforced by a sufficient number of examples to make this most efficient tool of the engineer thoroughly ready for his later use. Prerequisites, Courses XX, XXI, XXII, XXIII, XXIV. Four hours credit. Recitations, five hours per week last twelve weeks of semester.

XXVI. Calculus. Required second semester Sophomore in all four year courses in Engineering and Ceramics, elective Junior or Senior year in all courses in Science and in Agriculture. The work covered in differential calculus includes tangents, normals, asymptotes, direction of curvature, points of inflection, radius of curvature, order of contact, osculating circle, envelopes, singular points, and maxima and minima; in integral calculus applications are made to the determining of the lengths of plane curves, areas of plane surfaces, and surfaces of revolution, volumes of solids of revolution and other solids. Prerequisite, Course XXV. Recitations, four hours per week.

DEPARTMENT OF GENERAL AND APPLIED CHEMISTRY.

ALFRED A. BENNETT, PROFESSOR.
LOLA A. PLACEWAY, ASSOCIATE PROFESSOR.
W. F. COOVER, ASSISTANT PROFESSOR.
LOLA STEPHENS, JEANNETTE BARTHOLOMEW AND C. E. ELLIS, INSTRUCTORS.
MELISSA G. FLYNN, LAURA TAGGART AND A. E. BOBST, LABORATORY ASSISTANTS

The aim of the instruction in Chemistry is to develop in the student the inductive and experimental method of study, to excite in him an appreciation and love for true experimentation and to train his powers for inductive thinking, thus laying a foundation for technical or applied Chemistry.

The method of study is, therefore, distinctively the laboratory method. On the average, the student employs two hours of time in laboratory study for every hour of recitation. This proportion of time for the two divisions of work is especially carried out in the earlier part of the class study. The class room work aims to fix in the mind of the student chemical principles and facts based upon what has been learned by the actual handling and study of chemical substances.

Equipment and Accomodations.

The Chemical department occupies the whole of the four floors of the building known as Chemical Hall. The building is "T" shaped with a front 70 feet by 40 feet and a wing of 60 feet by 32 feet and contains twenty-seven rooms, ten of which are laboratories, the remainder being lecture, office, balance and store rooms.

The laboratories contain working tables which by a system of lockers can accommodate six hundred students. The assaying laboratory is well supplied with tables, furnaces and other apparatus for fire assaying. The laboratory for the course in blow piping is fitted with air blast and all of the usual conveniences for such laboratories.

The department is well supplied with accurate weights and balances for the courses involving quantitative analysis.

Persons desiring to prepare themselves to become teachers of chemistry, analytical chemists, or those seeking a preparation for the study of medicine will find here good facilities for study. The expenses are only sufficient to cover the actual cost of the material used in the prosecution of the work.

Description of Courses in Chemistry.

The work in Chemistry is conveniently grouped under the following general heads: (a) General and Descriptive Chemistry; (b) Analytical Chemistry, Qualitative and Quantitative Analysis; (c) Organic Chemistry; (d) Studies in Applied Chemistry.

(a) **General and Descriptive Chemistry** includes an elementary study of the non-metallic and metallic elements, their history, occurrence, preparation, properties and their principal compounds. In order better to train his powers of observation the student is required to describe the apparatus used and the phenomena produced, and to trace the relation of the results obtained to laws and principles.

The different courses in General and Descriptive Chemistry are arranged to meet, as far as practicable, the special needs of the students of the various departments. However, it is recognized that at this stage of the work the **Science of Chemistry** is the student's most practical acquisition.

(b) **Analytical Chemistry**, both **Qualitative** and **Quantitative**, is taken up in an elementary way at first and may be followed by courses in more advanced work. After this preliminary knowledge is obtained, the direction of the work will depend to a great extent on the degree the student is aiming to obtain. For the degree in **Agriculture** the analytical study is directed to an examination of those substances of agricultural interest, and to prepare the student for an intelligent use of the scientific data upon which agriculture is founded. In any case the purpose is to study Applied Chemistry from the standpoint of its fundamental principles.

In the recitations, methods of analysis are described and discussed, and the study of the theoretical chemistry carried forward. In this work, courses of study are arranged for graduate as well as for undergraduate students.

(c) In **Organic Chemistry**, courses are offered for the first degree and also as major and minor subjects for graduate students.

The course required of the students in the Division of Veterinary Science is of an elementary nature and is intended to give a sufficient knowledge of the subject to lay the foundation for the study of Physiological Chemistry which follows. The latter course considers the chemical changes going on in the living animal body; the essential composition of foods and the changes through which they pass in the animal economy; the chemistry of the secretion and excretion. The laboratory study is devoted to the three principal food constituents and to urine analysis.

The undergraduate in the division of Agriculture under the topic Organic Chemistry, studies in addition to the general principles of the subject, the chief food substances, i. e., the carbo-hydrates, fats, and proteids, poisonous substances found in the organic world, such as the alkaloids, ptomaines; the chemistry of milk and of the manufacture of butter and cheese. In a word, the student will consider, as completely as the time alloted to the subject will allow, the important questions that concern agriculture from the chemical standpoint.

To undergraduate students in the Division of Science is given a fairly complete outline of the theory of the structure and formation of organic compounds, but special attention is given to those compounds that are of commercial importance. In the laboratory the student prepares many of the more important manufactured organic substances, such as alcohol and soaps, and makes a special study of vinegars, sugar, petroleum and its products, glycerine, etc.

With this work as a foundation the graduate student selects some feature or features for more complete study. The amount and character of the work is left for arrangement between the individual and the head of the department. However, this will embrace such work as the analysis and study of foods, oils, fats, and the methods of preparation, purification, and adulteration of commercial organic substances.

(d) **Applied Chemistry.** It is recognized among persons whose opinions are worthy of consideration that the application of any science to the problems of life can be profitably taken up by the student only after a thorough grounding in the principles upon which the science rests. The purpose of the preliminary courses in this subject is to give this training as completely as possible.

Some twenty-five courses of study in applied chemistry are offered, or are required of the students for the various degrees open to them. In the nature of the case, this work is essentially quantitative analysis and consists of courses in the analysis of Agricultural products; Fuel and Gas Analysis; Blowpipe Analysis; Assaying and Metallurgy; Chemistry of the Household; The Preparation of Organic and Inorganic Compounds.

The courses in Agricultural Analysis include both inorganic and organic substances; such as: Soils, fertilizers, water, fodders and dairy products. This work is open to undergraduate and graduate students, i. e., the latter class of students will carry forward the work begun in the usual college courses.

The course in Fuel and Gas Analysis consists of the study of solid, liquid and gaseous fuels, in reference to their composition, and to their relative economic values. The student may devote the time of this course, principally, to technical analysis. The principles and methods of quantitative analysis learned in the elementary courses will be applied in the advanced work to the analysis of various organic and inorganic substances, such as foods, iron and steel. The application of the facts of Electro-chemistry to the quantitative analysis of ores, and in the manufacture of chemicals will be studied in an elementary manner. Although the work is largely done in the laboratory, it will be supplemented by lectures and recitations.

Quantitative Analysis by "fire methods" is applied to gold, silver, copper and lead ores. This work is introduced by a blowpipe study of minerals, and is intended to support and supplement the subjects of Descriptive Mineralogy and Crystallography which are studied in the Department of Geology.

The study of Metallurgy will consider the chemical changes going on in the separation of the principal metals and the assaying of metallurgical substances by wet processes. This will include the chemical changes in the ores, fluxes, and fuels, occuring during the processes in the preparation of metals, and also the quantitative analysis of such substances. The subject is considered in lectures, recitations and laboratory practice.

The courses in chemical preparations will include the formation of pure and commercial articles from raw materials, and the common adulteration of these products.

Chemistry of the Household considers the elementary chemistry of the principal food materials, changes produced in them during cooking and digestion, of cleaning and of adulteration of the chief food substances.

This course may be accompanied by a laboratory study of soaps, soap preparations, sugars, syrups, vinegars, and baking powders.

The work in Physiological Chemistry for the student in the Science Division (Course XXXVI) includes a careful study in the laboratory, of the composition of foods, the chemical characteristic of their constituents, the changes during digestion and assimilation, and the products of metabolism. The classroom work correlates these facts and by lectures and text-book they are given their appropriate explanation.

The work in Water Analysis covers a study of the methods employed, namely the so-called mineral and sanitary analysis, and the interpretation of these results, especially from the standpoint of the household, and for use in boilers in the production of steam. Methods of purification of water and a study of sewage will receive attention.

In each course in Chemistry, except course X, a deposit of $5.00 is charged to cover cost of materials used and breakage.

COURSES IN CHEMISTRY.

I. Elementary Inorganic Chemistry. Required first semester Freshman in Veterinary. Three hours credit. Recitations, two hours and laboratory three hours per week.

II. General Chemistry. Required second semester Sophomore in Science. Five hours credit. Recitations, three hours and laboratory six hours per week.

IV. General Chemistry (Metals) Required second semester Freshman year in Veterinary. Three hours credit. Recitations, two hours and laboratory six hours per week.

V. Qualitative Analysis. Elective first semester Junior or Senior year in Science course. Continuation of Course II. Five hours credit. Recitations, three hours and laboratory six hours per week.

VII. Blow Pipe Analysis. Required first semester Junior year in Mining Engineering, first semester of second year in two year course in Mining Engineering, elective first semester Junior or Senior year in all Science courses. Prerequisites, Courses II and V or III and VI. Recitations, two hours and laboratory nine hours per week the first half of semester.

VIII. Assaying. Continuation of Course VII, second half of semester.

IX. Organic Chemistry. Required second semester Junior year in Domestic Science, elective second semester Junior or Senior year in Science and General and Domestic Science courses. Prerequisites, Courses II and V or XXII and XXIV. Five hours credit. Recitations, four hours and laboratory three hours per week.

X. Elementary Organic Chemistry. Required first semester Sophomore year in Veterinary. Lectures, two hours per week.

XI. Quantitative Analysis. Required first semester Senior year in Domestic Science, elective first semester Junior or Senior year in Science and General and Domestic Science. Prerequisites, Courses II and V or XXII and XXIV. Five hours credit. Recitations, two hours and laboratory nine hours per week.

XII. Quantitative Analysis. Required second semester Junior year in Mining Engineering. Three hours credit. Lectures, one hour and laboratory six hours per week.

XIII. Physiological Chemistry. Required second semester Sophomore year in Veterinary course. Recitations, two hours and laboratory, one period per week.

XIV. Organic Chemistry. Elective first semester Junior or Senior year in Science courses. Continuation of Course IX, subject to arrangement by head of department and pupil. Five hour credit. A major or minor graduate study.

XVI. Chemistry of the Household. Elective second semester Junior or Senior year in Science courses. Prerequisites, Courses II, V, and IX or XXII, XXIV, and IX. Lecture, one hour per week.

XVIa. Chemistry of the Household. Elective second semester Junior or Senior year in Science courses. Accompanies Course XVI. Laboratory, one or two periods per week.

XXII. Elementary Chemistry. Required second semester Sophomore year in Domestic Science and General and Domestic Science. Recitations, three hours and laboratory two periods per week.

XXIV. Elementary Applied Chemistry. Required first semester Junior year in Domestic Science and General and Domestic Science. Recitations, three hours and laboratory, two periods per week.

XXX. Quantitative Analysis. Required first semester Senior year in Mining Engineering. Continuation of Course XII. Two hours credit.

XXXI. Inorganic Preparations. Elective second semester Junior or Senior year in Science courses. Prerequisites, Courses II, V, and IX or XXII, XXIV and IX. Recitations, two hours and laboratory two periods per week.

XXXII. Quantitative Analysis. Elective second semester Junior or Senior year in all Science courses. Continuation of Course XI. Four hours credit.

XXXVI. Physiological Chemistry. Elective second semester Senior year in all Science courses. Prerequisites, Courses II, V, and IX or XXII, XXIV and IX. Recitations, three hours and laboratory two periods per week.

XXXIX. Water and Sewage Analysis. Elective second semester Senior year in Civil Engineering. Recitation, one hour and laboratory two periods per week.

XLI. General Chemistry. Required first semester Freshman in all Engineering courses. Recitations, two hours and laboratory one period per week.

XLII. General Chemistry. Required second semester Freshman in all Engineering courses. Continuation of Course XLI. Recitations, two hours and laboratory one period per week.

XLIII. Qualitative Analysis. Required first semester Sophomore in Mechanical, Mining and Electrical Engineering. Continuation of Course XLII. Three hours credit. Recitations, one hour and laboratory two hours per week.

XLIV. Study of the Metals. Required second semester Sophomore year in Civil Engineering. One hour credit.

XLV. Analytical Chemistry. Required second semester Sophomore year in Mechanical and Electrical Engineering courses. Two hours credit.

XLVI. Elementary Quantitative Analysis. Required second semester Sophomore year in Mining Engineering. Four hours credit.

XLVII. The Chemistry of Foods and Food Adulteration. Elective second semester Junior or Senior year for all Science students. Prerequisites, Courses II and V or XXII and XXIV and IX and XI. Five hours credit. Three recitations or lectures and two laboratory periods.

Graduate Work in Chemistry.

Graduate students will be provided with work in Organic and Inorganic Chemistry extending through two years if desired.

This subject is open as a major study to graduates of this and other colleges of equal standing who have pursued the study of chemistry for two years and who are by this prepared to carry on independent work in the various directions that may be arranged by them and the head of the department. The courses of study will be along the lines of Applied or Industrial Chemistry with a sufficient ground work of theoretical study to give a rational explanation and conception of the processes involved. The work will include advanced analytical and synthetical chemistry, i. e., a study of the methods of chemical analysis and on the preparation of organic and inorganic compounds of industrial and commercial importance. The graduate student will select work along some one of these general lines of study and will devote his time to this, supporting it by other necessary collateral study, and such research in the literature of the subject as the library facilities will permit. A good reading knowledge of the German language will be essential to good progress in the prosecution of the work. Minor subjects in this department will be arranged so as to help as much as is possible the major subjects selected in the other departments.

Major or minor work may be taken in any of the following courses:

XV. Analysis of Foods. Prerequisites, Courses II, V, IX and XI.

XVII. Fuel and Gas Analysis. Prerequisites, Courses II, V, IX and XI.

XVIII. Electro-Chemistry. Prerequisites, Courses II, V, and XI.

XIX. Water Analysis. Prerequisites, Courses II, V, IX, and XI.

XXXIII. Qualitative Analysis.

XXXV. Organic Preparations. Prerequisites, Courses II, V and IX.

AGRICULTURAL CHEMISTRY.

A. A. BENNETT, PROFESSOR.
W. F. COOVER, ASSISTANT PROFESSOR.

The aim of the work in Agricultural Chemistry is twofold; namely, to give the student a fundamental knowledge of chemistry, and then to apply this knowledge to the chemical problems of agriculture.

Throughout the courses in Agricultural Chemistry, the study of chemical principles and relations is accompanied by its application to agricultural questions.

Courses in Agricultural Chemistry.

XXI. Elementary Experimental Chemistry. Required first semester Sophomore year in all Agricultural courses and first semester of first year in Two year courses in Ceramics and Mining Engineering. Introductory work intended to give knowledge of matter by actual handling and experience with it. Includes study of so-called non-metallic elements present in air and soil. The recitations review the work of the laboratory, the student learning how to take useful notes, their interpretation and application to common chemical changes occurring in nature. Five hours credit. Recitations, three hours and laboratory, two periods per week.

XXIII. Elementary Experimental Chemistry. Required second semester Sophomore year in all Agricultural courses and second semester of first year in Two year courses in Ceramics and Mining Engineering. Continuation of Course XXI. A study of the metallic or basic elements, their relation to non-metallic elements or the acids, and their place in formation of salts; the separation and recognition of these elements and their compounds preparatory to determining them quantitatively. Five hours credit. Recitations, three hours and laboratory two periods per week.

XXV. Agricultural Analysis. Required first semester Junior year in all Agricultural courses. A study of the fundamental principles of organic chemistry; the proximate composition of the various grain, root and fodder crops; the composition and changes occurring in farmyard and other manures; and the chemistry or assimilation and digestion. The laboratory work includes the preparation and study of a limited number of organic compounds, and study of carbohydrates, fats and proteids. Prerequisites, Courses XXI and XXIII. Four hour credit. Recitations, three hours and laboratory one period per week.

XXVI. Agricultural Analysis. Required second semester Junior in Dairying and Animal Husbandry and elective in Junior or Senior in all other Agricultural courses. Includes preliminary work involving the principles of gravimetric and volumetric analysis, followed by analysis of fertilizers, grain and mill feeds and fodders. Four hours credit. Recitations, two hours and laboratory two periods per week.

XXVII. Agricultural Analysis. Elective first semester Junior or Senior year in all Agricultural courses. Continuation of Course XXVI. Includes analysis of feeds, dairy products, vegetables, fruits, fresh foods, alcoholic beverages, vinegars, and other materials frequently analyzed, such as limestones and waters for boiler supply. Outline for work, Sherman's "Notes on Organic Analysis" supplemented by lectures. Four hours credit. Recitations, two hours and laboratory two periods per week.

XXVIII. Dairy Chemistry. Required first semester of One Year Course in Dairying. An elementary course arranged to fit the needs of the students in this course.

XXXIV. Advanced Agricultural Analysis. Elective second semester Junior or Senior year in all Agricultural courses. For those who wish to specialize in agricultural analysis. Involves the use of polariscope on sugar and saccharine products, of butyro-refractometer in analysis of fats and oils, of calorimeter in the determination of fuel value of food-stuffs and fuels. Laboratory work may be along some special line or along any of the following subjects: the analysis of sugar and saccharine products, oils, fats and waxes, soaps and lubricants, paints and varnishes, tea, coffee and cocoa, canned fruits and vegetables, relishes, extracts and spices. Text-book, Sherman's "Notes on Organic Analysis," supplemented by notes. Prerequisite, Course XXVII or XL. Four hours credit. Recitation, one hour and laboratory three periods per week.

XL. Dairy Chemistry. Elective first semester Junior or Senior year in all Agricultural courses. Analysis of pure dairy products; also a qualitative and quantitative analysis of adulterated products;

the detection of the preservatives and coloring matters commonly used. Reference book, Richmond's "Dairy Chemistry." Prerequisite, Course XXVI. Four hours credit. Recitations, two hours and laboratory two periods per week.

Graduate Work in Agricultural Chemistry.

Advanced work in Agricultural Chemistry leading to the Master's degree in Scientific Agriculture may be selected either as a major or minor study. This work may be taken in the Chemical department as a continuation of the work begun as an undergraduate of this or any other college of equal rank, or the student may elect to do this work with the chemical section of the Experiment Station, thus coming in touch with the research work and investigations being carried on there.

Graduate work may be taken in any of the following lines:

(a) **Chemistry of Soils.** Includes a study of Soil Chemistry and its relation to plant life, including the chemical composition, relation to fertility, determination of available plant food, fertilizers and other substances effective in production of crops, rain and drainage waters, and loss of plant food due to improper drainage and other conditions.

(b) **Chemistry of Dairying.** Covers a general survey of field of chemistry, applied to dairy problems, as the composition and chemical changes of butter, milk and cheese, and other fats and oils used as foods or as adulterants.

(c) **Chemistry of Feeds.** Includes study of the chemistry of plants and field crops, as chemical composition of corn, wheat and oats, methods of modifying and improving the chemical composition by selection and plant breeding, chemical study of growing plants during the various stages of development, effects of various elements in the soil on the composition, quality, yield or development of grain and forage crops, also study of the chemical composition and nutriments of the various refuse and by-products used for stock feeding.

(d) **Chemistry of Horticulture.** Includes study of chemical composition of fruits, including the influence of various elements in soil on the composition, quality, and productiveness of the orchard, vineyard or garden, also influence of climatic conditions, selection and breeding upon the composition and quality of fruits.

DEPARTMENT OF BOTANY AND GENERAL BACTERIOLOGY.

LOUIS HERMANN PAMMEL, PROFESSOR.
ROBERT EARLE BUCHANAN, ASSISTANT PROFESSOR OF GENERAL BACTERIOLOGY.
ESTELLE D. FOGEL, INSTRUCTOR IN BOTANY.
HARRIETTE KELLOGG, CURATOR OF THE HERBARIUM.
CHARLOTTE M. KING, INSTRUCTOR IN BOTANICAL DRAWING.
ADA HAYDEN AND GOTTLEIB BADER, LABORATORY INSTRUCTORS.

The Department of Botany and General Bacteriology now occupies the major portion of the third and several rooms on the fourth floor of the new Central Building. Twenty-five well lighted and equipped rooms are devoted to the work of this department.

The Laboratory for Elementary Students, accommodating thirty students each period, is well equipped with individual laboratory tables, lockers, dissection miscroscopes, water, gas, reagents, etc.

Laboratory for Histological and Pathological Botany, accommodating thirty students each period, is equipped with separate laboratory tables, individual compound microscopes, lockers, wall cases, water and gas, and an abundance of fresh and preserved material for study.

The Laboratory in Cytology, accommodating eight students, is equipped with heavy laboratory tables supplied with water, gas, Leitz triple objective microscopes, paraffine baths, microtomes, stains, reagents, and abundant facilities for all kinds of cytological investigations.

The Laboratory for Physiological Botany is equipped with all the modern apparatus for a systematic study of the functions and activities of plants and their parts. Will accommodate eight students.

Laboratory for Special Botanical Drawing is primarily intended for students writing theses in this department and for post-graduates.

The Laboratory for Economic Botany is equipped with dissecting and compound microscopes and with an excellent economic herbarium.

The General Bacteriological Laboratory, accommodating twenty students, the Bacteriological Laboratory for advanced students, accommodating eighteen students, and the Research Room in Bacteriology are each well equipped with large glass topped tables for each student, fitted up with gas, tap and distilled water, lockers for culture media and various apparatus, wall lockers for incubation of cultures at room temperatures, thermostats, ice chests, a culture room, balances, hood, and compound Leitz microscopes especially designed for bacteriological work.

The Media Room is fitted with stone topped tables, water, gas, etc., for the preparation of the various media used in the laboratory. A long hood covers the sterilizers and autoclaves needed for the preparation of these media.

For the use of all students in Bacteriology there is a small room for keeping cavies, etc., for experimentation, and also special facilities in the plant laboratories for experimental inoculation of plants.

A well lighted room on the fourth floor, used as pathological and physiological greenhouse laboratory, supplies an abundance of fresh material for class and laboratory work.

The lecture room is equipped with a very complete outfit for lantern demonstrations, both slides and lantern views.

HERBARIUM. The department now has about ninety thousand mounted and catalogued specimens in the herbarium. These consist of 44,000 in the General Phanerogamic Collection, 25,000 in the Parry Collection, 5,000 in the General Cryptogamic Collection, 15,000 in the Cryptogamic Exsicatti, and 1,000 in the Seed Collection. These specimens were collected in the Mississippi Valley, in Iowa in particular, also in the Eastern States, the Rocky Mountains, the Pacific coast and in Europe. The collection of Phanerogams was commenced under Dr. Bessey and continued under Dr. Halsted. Beside this there is the Parry Collection, Cryptogamic Herbarium, the Holway Herbarium (excepting the Uredineae), the Fink Herbarium (excepting the Lichens), and the Andrews Collection.

Grass Collection. This collection contains excellent material from every part of the state and various parts of the United States and Europe. It is invaluable to the student in Agrostology.

Parry Collection. This collection contains hundreds of new species found by Dr. Parry on his collecting trips and is especially rich in the plants of California, Mexico and the Rocky Mountain Region. Most of these were collected before the advent of the railroad, many are types and hence invaluable.

Dendrological Collection. The herbarium also contains a very excellent collection for dendrological study, many of the trees being represented by photographs and wood specimens. The cases in which the herbarium is placed are made of about fifty species of wood native to the United States.

Economic Collection. This collection consists of very complete sets of the various plants of economic importance, either as the friends or foes of man, including a collection of weeds and poisonous plants.

Seed Collection. This contains the sets of seeds distributed by the U. S. Department of Agriculture, several sets of German weed seeds, and a large collection of the seeds of various cultivated and wild plants. This collection is of the greatest value in the study of seed adulteration.

Cryptogamic Collection. This collection contains a large number of very valuable exsicatti, the Ravenel Fungi Americana, Ellis North American Fungi, the von Thuemen Mycotheca Universalis, those of Sydow, Seymour and Earle and numerous smaller collections.

THE MUSEUM. The department has a large amount of material incorporated into an Economic Museum. The collections are systematically grouped, showing in many cases the evolution of the finished product from the crude material, especially of the fiber products. There is also a collection of the various edible and poisonous fungi in formalin.

The work of this department is divided into the courses in Botany and those in General Bacteriology, in each of which undergraduate and graduate courses are offered. For graduate work, the department offers unusual facilities, major or minor work being offered to supplement that of the various scientific courses.

The courses in Botany are arranged in groups, thus affording the student an opportunity for study along several lines. In each of these groups the first course is essentially elementary.

Elementary Group,

I. Elementary Botany.

Physiological Group,

II. Ecology.
XI. Vegetable Physiology.

Morphological Group,

III. Vegetable Histology.
IX. Structural Botany.
XII. Vegetable Cytology.
XX. Botanical Microscopy and Micro-Chemistry.
XXIV. Plant Embryogeny.

Systematic Group,

IV. Cryptogamic Botany.
VI. Advanced Non-vascular Cryptogams.
XV. Systematic Phanerogams.
XVII. Advanced Cryptogamic Botany, Ferns.

Economic Group,

V. Vegetable Pathology.
X. Economic Botany.
XIII. Agrostology.
XIV. Seeds and Seed Testing.
XVI. Poisonous Plants.

General Group,

XIX. Evolution of Plants.
XVIII. Botanical Seminar.
XXII. Botanical Drawing and Illustrating.
XXIII. Thesis.

COURSES IN BOTANY.

I. Elementary Botany. Required first semester Academic year in Science and Agricultural courses. Embraces a study of the terms used in descriptive botany, and of morphology and determination of flowering plants. Laboratory includes the chief points of elementary botany such as the germination of seed, the different members of the plant, the root, shoot and lateral appendages, the leaves, flower, fruit and seed. A collection of fifty named plants is required. Required of all students in these courses who have not had a high school laboratory course equivalent to three hours per week for twenty weeks. Two hours credit. One lecture and laboratory three hours per week. Fee, $1.50.

II. Ecology. Required first semester Freshman year in all Science courses and second semester Academic in Agricultural course. Treats of relation of plants to their environment; relation between insects and flowers; pollination by wind and other agents, dissemination of seed by animals, wind, water and other means; factors influencing plant distribution and the organization of plant communities. Excursions are an essential feature of this course. Two hours credit. Lecture, one hour and laboratory three hours per week. Fee, $1.50.

III. Vegetable Histology. Required second semester Freshman year in all Science courses, second semester Sophomore year in Agronomy, Science and Agriculture, elective second semester Junior or Senior year in all other Agricultural courses. A study of the use of the microscope with first simple subjects as air bubbles and cotton fibre, followed by a study of the plant cell and its contents, as starch, protoplasm, nucleus and crystals. The division of cells and nuclei are studied in the light of recent investigations and modern theories.

In the laboratory the different organs and parts of the plant are taken up from both the physiological and histological standpoints. For example the cuticle, cuticularized and cellulose layers of the leaf of the Agave are discussed with regard to their significance in preventing transpiration; the absorbing, assimilating, aerating, and conducting systems are considered in the same way. Four hours credit. Lectures, three hours and laboratory three hours per week. Fee, $3.00.

IV. Cryptogamic Botany. Elective first semester Sophomore year in Science course, first semester Junior or Senior year in all Science courses, and first semester Junior or Senior year in all Agricultural courses. A study of typical representatives of important groups below the flowering plants, especially smuts, rusts, mildews, and moulds because of their significance in Agriculture. Frequent excursions are obligatory. A collection of seventy-five mounted and classified specimens is required. Prerequisite, Course I. Five hours credit. Lectures, three hours and laboratory six hours per week. Fee, $3.00.

V. Vegetable Pathology. Required first semester Senior year in Horticulture and Science and Agriculture, elective first semester Junior or Senior year in all other Agricultural and Science courses. Study of the plant diseases of the various horticultural, garden and farm crops from the standpoint of the host plant; also theories of prevention of disease, of rotation of crops, and the use of fungicides. Prerequisites, Courses I and IV. Three or five hours credit. Lectures, two hours and laboratory three or nine hours per week. Fee, $3.00.

VI. Advanced Non-vascular Cryptogams. Elective first semester Junior or Senior year in all Science courses and first semester Junior or Senior year in all the Agricultural courses. Lectures and laboratory work on the various non-vascular cryptogams, particularly the fungi, of our native flora; also laboratory investigation of a single group from both pathological and systematic point of view. Prerequisites, Courses I and IV. Three hours credit. Lecture, one hour and laboratory six hours per week. Fee, $3.00.

IX. Structural Botany. Required first semester Freshman year in Veterinary. This course is designed for Veterinary students, it being necessary that the well equipped Veterinarian have a knowledge of the terms used in morphological botany, and of the microscopic structure of plants. Vegetable drugs may consist of the whole plant but more frequently of parts only, and hence the detection of adulterants is a subject for microscopic determination. Thus this course includes a study of parts of the plant from the root to the reproductive organs; with laboratory study of the histology of plants especially from the standpoint of pharmacognosy, with a brief survey of more important groups from a systematic standpoint. Three hours credit. Lectures, two hours and laboratory three hours per week. Fee, $3.00.

X. Economic Botany. Elective first semester Junior or Senior year in all Agricultural and Science courses. A microscopic study of various plants and their food products and adulterants; the reserve food of plants, its form and use, and a systematic study by groups of the plants of economic value and a study of their origin and place of cultivation. Prerequisite, Course I. Two hours credit. Lecture, one hour and laboratory three hours per week. Fee, $2.00.

XI. Vegetable Physiology. Required second semester Sophomore year in Horticulture, second semester Senior year in Science and Agriculture, elective second semester Junior or Senior year in Science and in all other Agricultural courses. Lectures and laboratory practices on the functions, growth, nutrition, irritability, movements and reproduction of plants. Prerequisite, Course I. Three hours credit. Lectures, two hours and laboratory three hours per week. Fee, $3.00.

XII. Vegetable Cytology. Elective second semester Junior or Senior year in all Agricultural and Science courses. A study of the plant cell and its activities, use of various reagents in staining, imbedding, mounting; various cell-like phenomena as they aid in an intelligent understanding of various problems in heredity and as illustrating DeVrie's Theory of Mutations and the relation in general of the hybrid and the cross to the parent. Prerequisites, Courses I and III. Four hours credit. Lectures, two hours and laboratory six hours per week. Fee, $3.00.

XIII. Agrostology. Elective first semester Junior or Senior year in all Agricultural and Science courses. A systematic study of the botanical position and economic uses of important grasses, as those used in meadows and pastures, cereal food products, grasses in medicine, as soil binders and for lawn making. Two hours credit. Lecture, one hour and laboratory three hours per week. Fee, $2.00.

XIV. Seeds and Seed Testing. Elective first semester Junior or Senior year in Science courses. Study of principle agricultural seeds and weeds, methods of detection of weeds in commercial seeds, and structure and germinative energy of various seeds. Prerequisite, Course I. Two hours credit. Lecture one hour and laboratory three hours per week. Fee, $2.50.

XV. Systematic Phanerogams. Required second semester Sophomore year in Science and Agriculture and Horticulture, elective second semester Junior or Senior year in all Agricultural and Science courses. Study of the more important orders of flowering plants; historical survey of various systems of classification; study of groups by means of some representative, the herbarium of the college affording material for this purpose. Prerequisite, Course I. Three to five hours credit. Lectures, two hours and laboratory three to nine hours per week. Fee, $3.00 or $5.00.

XVI. Poisonous Plants. Required second semester Freshman year in Veterinary. Study of poisonous plants from historical standpoint, with brief history of toxicology, ptomaine poisoning and poisoning by toxins and other agents—beginning with the poisonous fungi and extending through the higher plants in systematic order. The course is intended to acquaint veterinarians with the plants responsible for poisoning animals. Two hours credit. Lecture, one hour and laboratory three hours per week. Fee, $3.00.

XVII. Advanced Cryptogamic Botany, Ferns. Elective first semester Junior or Senior year in Science courses. Morphological and Systematic study of ferns and their allies. Prerequisite, Course IV. Three hours credit. Lecture, one hour and laboratory six hours per week. Fee, $2.00.

XVIII. Botanical Seminar. Elective first or second semester Junior or Senior year in Science courses. Recent literature and topics of botanical interest are reported and discussed by members of seminar, each member reporting on some assigned topic at least once every two weeks. Lectures are also given by members or by some scientist under the auspices of the seminar. One hour credit.

XIX. Evolution of Plants. Elective first semester Junior or Senior year in all Agricultural and Science courses. Study of theory of evolution of plants, heredity, mutation, Mendelian laws, present and past distribution of plants as related to origin of species. Prerequisites, Courses I, II, III and XV. Two hours credit. Recitation, one hour and laboratory three hours per week.

XX. Botanical Microscopy and Micro-Chemistry. Elective second semester Junior or Senior year in Science courses. Detailed study of microscope and its accessories and their use in research work; the chemistry of the cell with methods of determination of cell contents and ultimate fate of cell nutrients. Prerequisites, Courses I and III.

Three hours credit. Lecture, one hour and laboratory six hours per week. Fee, $3.00.

XXII. Botanical Drawing and Illustrating. Elective first semester Junior or Senior year in Science courses. Preparation of drawings to illustrate papers for publication; methods of making drawings and technical requirements of drawings intended for photographic reproduction; use of camera lucida; the determination of magnification and drawing from microscopic mounts. Two hours credit. Lecture, one hour and laboratory three hours per week.

XXIII. Thesis. Elective for students qualified in Botany. Consists of original research along line of any preceding courses, laboratory work, preparation of bibliographies, reviewing literature pertaining to the subject, and conferences with those in charge. Credit from one to five hours per week.

XXIV. Plant Embryogeny. Required second semester Senior year in Horticulture, second semester Senior year in Science and Agriculture, and required second semester Junior year in Agronomy and Animal Husbandry if students elect Horticulture IV. The phenomena of cell division, the nuclear changes of the cell at different stages in its growth, a survey of life history of various groups of plants beginning with liver-worts, the gradual development of the alternation of generations in various types, the homologies of the parts of flower and its various contained structures, processes of maturation of germ cells, growth of the gametophytic generation and the final process of fertilization and the consequent development of embryo, cytological explanations of the laws of Mendel, of parthogenesis, of xenia, and polyembryony, also the study and verification of lectures by study of a series of slides. One hour credit. Fee, $1.50.

XXV. Microscopical Examination of Foods. Elective second semester Junior or Senior year in all Agricultural courses. This course embraces a study of vegetable foods from the standpoint f microscopy with especial reference to the adulteration of same. It takes up the histological elements of plants such as tissues and cell contents. A microscopic study of flour, and meal, impurities and adulterations, and the microscopic characters of the cereals such as wheat, oats and corn. A study of weed seeds and screenings; oil seeds and oil cake. A microscopic study of legumes like the common bean, pea and vetch; other fruits like the apple, pear and quince; cucurbit fruits; tubers, spices and condiments, like pepper, cubebs, cinnamon, nutmeg and mace. Lectures and laboratory work. Reference book, "The Microscopy of Vegetable Foods," by Winton and Meller. Two hours per week.

COURSES IN GENERAL BACTERIOLOGY.

XXX. General Bacteriology. Required second semester Junior year in Dairying, Agronomy and Science and Agriculture, second semester Senior in Horticulture, elective second semester Junior or Senior year in Science and Animal Husbandry. Lectures on the morphology, classification, physiology, and cultivation of bacteria; relation of bacteria to health of man and animals, infection, contagion, immunity, relation of bacteria to decay, as cause of plant diseases and other scientific and agricultural problems. Laboratory work consists of methods of cultivating bacteria, their functions and activities, and of the solution of specific problems, as the bacteriae content of air, water and food with interpretation of results reached. Four hours credit. Lectures, two hours and laboratory six hours per week. Fee, $5.00.

XXXI. Bacteriology of the Pathogenes. Required first semester Junior year in Veterinary course. Study of morphology, classification, cultivation, physiological characters of bacteria; study of pathogenic bacteria especially those infecting domestic animals, their cultural character, the principles of infection and contagion, and the treatment of various theories of immunity as related to bacterial infections; also discussion and preparation of anti-sera. Two hours credit. Lecture, one hour and laboratory three hours per week. Fee, $5.00.

XXXII. General Bacteriology. Elective first semester Junior or Senior year in General and Domestic Science. Study of morphology, classification, cultural and physical characters of bacteria; their relation to home, as producers of disease, functions in decay and purification, disposal of wastes, and purity of water supplies and sanitation. Three hours credit. Lectures, two hours and laboratory three hours per week. Fee, $5.00.

XXXIII. Technical Bacteriology. Elective first semester Senior year in Civil Engineering. Study of morphology, relationships and cultural characters of bacteria of water and water supplies, as the common water bacteria, the pathogenic types, and those active in putrefaction and purification, also some of the algae which contaminate water supplies and produce unpleasant odors and tastes; the methods used to determine their presence; qualitative and quantitative tests of waters, and a study of media used in bacterial analysis. Three hours credit. Lecture, one hour and laboratory six hours per week. Fee, $5.00.

XXXIV. Bacteriology of the Pathogenes. Elective first semester Junior or Senior year in Science courses. Similar to Course XXXI, the extended time permitting study of bacteria pathogenic to man as well as to animals. Prerequisite, Courses XXX, XXXII or XXXVIII. Four hours credit. Lectures, two hours and laboratory six hours per week. Fee, $5.00.

XXXV. Fermentations. Required second semester Junior year in Domestic Science, elective second semester Junior or Senior year in Science and General and Domestic Science. The bacterial decomposition of foods, causes and methods of preventing formation of poisonous products; economic fermentations, as wine, beer, vinegar, koumiss; the vegetable enzymes, their activities and products; molds, bacteria and yeasts as related to the preservation and fermentation of foods; also the common molds. Two hours credit. Prerequisites, Courses XXX, XXXII or XXXVIII. Lecture, one hour and laboratory three hours per week. Fee, $3.00.

XXXVI. Advanced General Bacteriology. Elective second semester Junior or Senior year in all Agricultural and Science courses. Advanced work in the biology and physiology of bacteria, especially certain of pathogenic forms; also the recent investigations in immunity, serum therapy and the prevention of disease. Intended to fit students to do original or special work in experimental, general or pathological bacteriology. Prerequisites, Courses XXX, XXXII or XXXVIII. Four hours credit. Lectures, two hours and laboratory six hours per week. Fee, $5.00.

XXXVII. Advanced Sanitary Bacteriology. Elective first semester Junior or Senior year in Science courses. Primarily a study of bacteria of water, study of specific instances of polluted water supplies and of problems that have been solved in the disposal of sewage and other wastes by means of bacteria. Prerequisites, Courses XXX, XXXII or XXXVIII. Three hours credit. Lecture, one hour and laboratory six hours per week. Fee, $5.00.

XXXVIII. General Bacteriology. Required first semester Junior year in Domestic Science. Essentially same as Course XXXII occupying only two hours. Lecture, one hour and laboratory three hours per week. Fee, $5.00.

XXXIX. Thesis in Bacteriology. This work may be elected in this department and taken under any of preceding subjects, the credit varying from one to three hours depending on the nature of subject and time required.

Post Graduate Work in Botany and General Bacteriology.

Major or minor post graduate work may be taken in this department along any of the following lines.

(a) **Advanced Ecology.** A study of factors underlying floristic distribution and phytogeographic nomenclature, the relation of plants to environment and a thorough study of economic relationships of some flora, applying the principles named above.

(b) **Advanced Physiological Botany.** A study of some specific problems in plant physiology.

(c) **Advanced Vegetable Cytology and Histology.** A study of comparative anatomy of some group of plants or of some specific problem in cell life and its activities.

(d) **Advanced Systematic Cryptogamic Botany.** A systematic study of some group of the flowerless plants.

(e) **Advanced Systematic Phanerogams.** Study of some group of the phanerogams or of the flora of some locality.

(f) **Advanced Economic Botany.** Study of some specific problem of particular interest as the adulteration of foods, seeds; geographical botany, etc.

(g) **Advanced Mycology.** A specific study of some group of plant diseases, or of the disease affecting some plant or a group of related plants.

(h) **Water Analysis.**

(i) **Advanced Fermentations.**

(j) **Advanced Bacteriology of the Pathogenes.**

DEPARTMENT OF ZOOLOGY.

HENRY E. SUMMERS, PROFESSOR.
JOSEPH E. GUTHRIE, ASSISTANT PROFESSOR.
C. E. BARTHOLOMEW, INSTRUCTOR.
H. NESS, ASSISTANT.

Equipment. The laboratory is well supplied with the usual apparatus, including compound and dissecting microscopes, camera-lucidas, microtones, incubators, paraffin baths, aquaria, etc. In the way of illustrative material, in addition to the general museum and the entomological collections described below, there is a large series of charts, a set of wax embryological models, lantern slides, mounted microscopic slides, disarticulated and articulated skeletons, and alcoholic preparations.

The general museum consists of specimens selected with great care to show the variation of structure found in the various branches, classes and minor divisions of the animal kingdom. Porifera, coelenterata, vermes, echinodermata, arthropoda, mollusca and vertebrata are amply represented by actual specimens and Blaschka glass models. It is especially rich, however, in representative birds and mammals. In addition to a good series of skeletons, there are mounted skins of over four hundred, and eggs of three hundred species of birds and over ninety mounted skins of mammals, the later including such rare or peculiar forms as the echidna, ornithorhynchus, great kangaroo, kaola, wombat, sloth, great ant-eater, armadillo, manatee, peccary, camel, antelope, bison, Rocky Mountain goat and sheep, elk, tapir, porcupine, beaver, fur seal, hedgehog, lemur and monkey.

The collection of insects is very large, embracing about sixty thousand mounted specimens, including a large number of types. It includes the Van Duzee collection of Hemiptera, including the types of numerous species described by him. There is also a large series of microscopic forms on slides, and a large amount of material illustrating life histories, especially of injurious insects.

The work in Zoology is designed, first, to give a knowledge of those biological laws, together with the data necessary for their thorough comprehension, which is today regarded as an essential part of a liberal education; secondly, to furnish the requisite theoretical basis for an intelligent study of certain practical branches of stock breeding, dairying, human and veterinary medicine, and economic entomology, which depend directly upon zoological principles; and, thirdly, to impart a knowledge of the facts and methods of investigation in the last of these practical subjects, namely, economic entomology.

COURSES IN ZOOLOGY.

II. General Zoology. Required first semester Sophomore year in Science and Animal Husbandry, first semester Junior year in Domestic Science, elective first semester, Junior or Senior year in General and Domestic Science and first semester Junior or Senior year in all the Agricultural courses. This together with Zoology III is designed to give an outline knowledge of the entire animal kingdom, as well as of the more important biological laws. The laboratory work includes a thorough study of the structure of the grasshopper, followed by a comparative study of certain parts of the beetle. The lectures during the corresponding time deal with those facts in the physiology and life history of insects that will best serve as a foundation for a knowledge of the general laws of animal life. This, followed by a study of the crayfish and crab, gives a basis for comparison between the Crustacea and Insecta. The earth worm is next studied, the lecture work dealing with the relations of animals to their environment. Vertebrates are next studied, the lecture work dealing with the anatomy of the shark and the lectures with general vertebrate physiology, including the fundamentals of embryology. The study of the vertebrate is continued by examination of the perch, necturus, frog, turtle, bird and mammal. The Protozoa are next studied, the lectures dealing with the origin of the physiological functions as exhibited in this group. Then a study is made of selected types of the different phyla of the animal kingdom, taken up in regular order until the vertebrates are again reached. Five hours credit. Lectures, three hours and laboratory, six hours per week. Fee, $3.00.

III. General Zoology. Required second semester Sophomore year in Science and Animal Husbandry, second semester Junior year in Domestic Science, and elective second semester Junior or Senior year in General and Domestic Science and all the Agricultural courses. Continuation of Course II. Five hours credit. Lectures, three hours and laboratory, six hours per week. Fee, $3.00.

IV. General Entomology. Required first semester Junior year in Horticulture, elective first semester Junior or Senior year in all other Agricultural courses and first semester Junior or Senior year in Science courses. A study of the structure, habits, life history and classification of insects, designed as an introduction to the subject for those intending to make a specialty of entomology and as a foundation for the practical work in economic entomology offered in Course IX. Includes a detailed study of certain representative forms, beginning with the grasshopper, and the field study, collection and classification of as many species as possible representing different orders. The lectures include the general principles of the physiology and development of insects and the detailed life history of representatives of all the different orders. Five hours credit. Lectures, two hours, and laboratory, nine hours per week. Fee, $3.00.

V. Embryology. Required first semester Junior year in Veterinary and Animal Husbandry, elective first semester Junior or Senior year in all other Agricultural courses and first semester Junior or Senior year in Science courses. The laboratory work is devoted to a study of the development of the frog and of the chick from preparations made largely by the student, supplemented by others furnished for comparison by the instructor. The methods of making reconstructions from sereal sections may be learned. In the lectures the general principles of development are discussed beginning with the structure of the germ cells, maturation, fertilization, and tracing the modifications of cleavage and gastrulation found in the different classes of vertebrates. Prerequisites, Zoology III or XV. Two lectures and one laboratory period per week in Veterinary and Animal Husbandry, two lectures and one to three laboratory periods per week in other courses. Fee, $3.00.

VI. Evolution of Animals. Required second semester Senior year in Animal Husbandry, elective second semester Junior or Senior year in the Science and elective second semester Junior or Senior year in all the Agricultural courses. A discussion of problems and factors of organic evolution, heredity, variation, origin and distribution of life. Prerequisite, Zoology III. Lecture, one hour per week.

VII. Comparative Anatomy. Elective second semester Junior or Senior year in all Science courses. Advanced work on the comparative anatomy of the chief systems of organs of vertebrates designed especially to give an understanding of mammalian morphology as derived from that of lower vertebrates. Prerequisites, Zoology III and IV. Five hours credit. Three lectures and two laboratory periods per week. Fee, $3.00.

VIII. Animal Parasites. Required second semester of Junior year in Veterinary and Animal Husbandry courses, elective second semester Junior or Senior year in Science courses. Study of more injurious parasites of domestic animals. Intended especially for Veterinary students. Prerequisites, Zoology II or XV. Two lectures and one laboratory per week in Veterinary course, two lectures in Animal Husbandry and Science courses.

IX. Economic Entomology. Required first semester Senior year in Horticulture course, elective first semester Junior or Senior year in other Agricultural courses, and elective first semester Junior or Senior year in Science courses. A detailed study in field, insectary and laboratory of the chief economic species of insects found in Iowa, accompanied by a study of the chief literature relating to other American species. Prerequisite, Course IV. Two lectures and three laboratory periods. Fee, $3.00.

X. Morphology. Elective first or second semester Junior or Senior in Science courses. Special individual work in continuation of

Courses II, III, V and VII, designed especially for those who expect to become teachers and investigators in Zoology and who are writing their thesis in this department. The work will be given a leaning toward general vertebrate or invertebrate morphology, embryology or taxonomy, depending upon the inclination of the student. Prerequisites, Courses V and either VII or XV. Three to five laboratory periods per week. Fee, $3.00.

XI. Neurology. Elective first semester Junior or Senior year in Science courses. The comparative morphology of the vertebrate nervous system, especially the physiological anatomy of the human brain. Prerequisites, Zoology II, III and V. Two lectures and one to three laboratory periods per week. Fee, $3.00.

XII. Human Physiology. Required first semester Senior year in Domestic Science course and elective first semester Junior or Senior year in other Science courses. Study of the chief functions of the human body, and the laws of health, preceded by a study of mammalian anatomy including histology. Prerequisites, Zoology II and III and Chemistry XXII, XXIV, and IX, or II, V and IX. Five hours credit. Three lectures and two laboratory periods per week. Fee, $3.00.

XIII. Human Physiology. Required second semester Senior year in Domestic Science course and elective second semester Junior or Senior year in other Science courses. Continuation of Course XII. Five hours credit. Three lectures and two laboratories. Fee $3.00.

XIV. Advanced Invertebrate Zoology. Elective second semester Junior or Senior year in Science courses. Study of the structure and development of representatives of invertebrate groups not fully discussed in previous courses; the embryology and anatomy of Echinodermata, the development of a marine worm, the types of Mollusca, Arachnida and Ascidia. Special attention is paid to models of respiration, kinds of respiratory apparatus, and also to special sense organs in Pecten, Loligo, etc. Prerequisite, Zoology V. Two lectures and one laboratory period per week. Fee, $3.00.

XV. General and Vertebrate Zoology. Required first semester Sophomore year in Veterinary course. A study of the anatomy of the grasshopper gives a knowledge of Zoological laboratory methods as well as the general structure of insects; a study of the anatomy of the shark serves as an introduction to methods of gross disection, and of the general morphology of vertebrates. Other vertebrate types, especially the necturus, are studied. The lectures include general animal physiology, and an outline of the comparative anatomy of some of the chief organs of the vertebrates and of elementary vertebrate embryology. Five hours credit. Lectures, three hours and laboratory, two periods per week. Fee, $3.00.

Special Courses.

In addition to the above, special courses will be offered to students intending to write a thesis in Zoology, and also for graduate students in continuation of the work pursued as under-graduates. Special facilities will be offered for such research work. No one will be permitted to write a thesis in this department who has not completed by the end of the Junior year, work in the line in which he wishes to carry on his thesis investigation at least up to or including Course VII, or III and IX, or XII and XIII, or XIV.

DEPARTMENT OF GEOLOGY.

SAMUEL WALKER BEYER, PROFESSOR.
IRA A. WILLIAMS, ASSISTANT PROFESSOR.

The work of this department is conducted by means of recitations, lectures, conferences, laboratory work, and field excursions. The student is thus afforded an opportunity not only to gain a familiarity with the principles and theories discussed in the leading text-books, but is also encouraged to test these theories and verify the principles discussed in the class room. Field excursions, with carefully written reports are required in all the courses in Geology.

The department of Geology together with the department of Mining Engineering occupies quarters in Engineering Hall. The working equipment consists of museum materials, field and laboratory instruments.

The museum contains carefully selected series of fossils, minerals, rocks and ores, all available for study purposes. Among the more important collections are the educational series of rocks collected by the United States Geological Survey; the Smithsonian collection of rocks and minerals; the Rohn, Hodson and Young collections of rocks and ores from the Lake Superior region; the English mineral collection, containing two hundred specimens and one hundred and fifty species;

the Baltimore series of more than two hundred specimens of rocks and minerals typical of the petrographic province of Baltimore; the Cushing collection from Clinton County, New York; and a considerable amount of material to illustrate the physical features of rocks and minerals.

In paleontology, the Calvin collection of paleozoic fossils; a large collection of Coastal Plain fossils, principally from the Cretaceous of New Jersey, the Eocene of Alabama and Maryland, and the Miocene of Maryland and Virginia; the Permo-Carboniferous series from Kansas and Russia; and the coal plants of Iowa, Illinois and Pennsylvania are the most important.

In Applied Geology the department possesses comprehensive series of lead and zinc ores with their characteristic gangue minerals from Joplin, Missouri, and from the Iowa-Wisconsin area; copper and iron from the Lake Superior region and from the celebrated localities in the Ural mountains; copper, manganese and silver from Butte, Montana; lead, silver and gold from Colorado, Nevada and California.

Aside from the collections enumerated, Dr. H. Foster Bain, formerly of the Iowa Geological Survey, has kindly loaned to the department his extensive private collection of rocks and minerals; and the Le Grand Quarry Company generously donated a splendid series of building blocks from their quarries which exhibit the various styles of stone dressing.

The laboratory is supplied with four Bausch and Lomb petrographical microscopes; one Fuess, medium model, latest pattern petrographical microscope. All of the instruments are well supplied with accessories; one Ward mineral dresser, one hand goniometer; one set Preston's celluloid crystal models; one set Krantz selected wood models, exhibiting complicated forms; the Krantz collection of 120 thin sections of the common rock-forming minerals selected and arranged according to Rosenbusch, the collection selected to show the various representative characters of minerals and rocks; one section slicing machine, the complete apparatus for rock separations by heavy solutions; and is supplied with apparatus for doing all kinds of photographic work. A considerable number of instruments for reconnoissance and field work in Geology are owned by the department.

The lecture equipment comprises a Hitchcock's geological map of the United States; one set of Kiepert's physical maps; numerous maps and charts of the United States Geological Survey and of the Mississippi River Commission and an elaborate series of lantern slides and photographs.

COURSES IN GEOLOGY AND MINERALOGY.

I. Physiography. Required first semester Freshman year in Science, first semester Sophomore year in Science and Agriculture, elective first semester Junior or Senior year in all Agricultural courses. An introduction to the Science of Geology. A study of agents which help modify the earth's crust, also results of this action. Text-book, Davis' or Tarr's Elements of Physical Geography. Recitations, three hours per week.

II. General Geology. Required first semester Junior year in Mining, and second semester of second year in Two year course in Ceramics and Mining Engineering, elective first semester Junior or Senior year in all Agricultural and Science courses. A study of principles which form the groundwork of the science, including dynamic, structural, stratigraphic, and historical geology. Students make excursions to points of geological interest to verify facts discussed in class room. Prerequisites, one semester of Chemistry, also Physics I or II. Recitations, five hours per week.

III. Engineering Geology. Required second semester Senior year in Civil Engineering. A discussion of fundamental principles of dynamical and structural geology; and study of common minerals and rocks, especially those important in structural materials. Prerequisites, one semester of Chemistry, also Physics I or III. Recitations, four hours per week.

IV. Advanced Geology. Required second semester Senior year in Mining, and elective second semester Junior or Senior year in all Agricultural and Science courses. Includes study of nature, mode of occurrence and origin of the minerals and rocks constituting the earth's crust; rock alterations as involved in metamorphism and weathering. Excusions continued as in Course II. Prerequisite, Course II or III. Recitations, five hours per week.

VI. Mineralogy. Required second semester Junior year in Mining, and elective second semester Junior or Senior year in Science courses. Study of morphological and physical properties of crystalline substances. Prerequisites, one semester Chemistry, Physics I or III, and Mathematics VI. Three hours credit. Recitations, two hours and laboratory, one period per week.

VII. Descriptive and Determinative Mineralogy. Required first semester Senior year in Mining. A study of the most important mineral species, their properties, uses, distribution and methods of determination. Prerequisite, Geology VI. Three hours credit. Recitations, two hours and laboratory, one period per week.

DEPARTMENT OF ECONOMIC SCIENCE.

BENJAMIN H. HIBBARD, PROFESSOR.
JOHN H. COULTER, INSTRUCTOR.

Economic Science has become a well recognized part of almost all scientific and technical education, because it has made itself useful in investigating and interpreting the material phenomena and facts of every day life. Economic theory is taught as the generalized truth of economic life; inductive methods are given first place, deduction being used with caution.

COURSES IN ECONOMIC SCIENCE.

I. Outlines of Economics. Required first semester Junior year in Mechanical and Electrical Engineering, second semester Junior year in Civil Engineering, elective first semester Junior or Senior year in all Science courses. Includes the principles of economics and supplementary work in industrial history. Text-book, Fetter's "Principles of Economics." Recitations, five hours per week.

III. Economic Problems. Elective first semester Junior or Senior year in all Agricultural and Science courses. Study of socialism, monopolies and trusts. Text-book, Ely's "Socialism and Social Reform." Prerequisite, Course I or VIII. Recitations, three hours per week.

IV. Money and Banking. Elective second semester Junior or Senior year in all Agricultural and Science courses. Text-book, Kinley's, "Money," supplemented by reading, reports and lectures. Prerequisite, Course I or VIII. Recitations, two hours per week.

V. Finance. Elective second semester Junior or Senior year in all Agricultural and Science courses. Text-book, Adams' "Science of Finance." Prerequisite, Course I or VIII. Recitations, three hours per week.

VI. Industrial History of United States. Elective second semester Junior or Senior year in all Science and Agricultural courses. Lecture and class reports. Prerequisite, Course I or VIII. Recitations, two hours per week.

VII. American Labor. Elective in first semester Junior or Senior year in all Agricultural and Science courses. A study of labor questions by class report and lectures. Prerequisite, Course I or VIII. Recitations, two hours per week.

IX. Outlines of Economics. Optional first semester Sophomore year in Science and Agriculture, Horticulture and Forestry and Dairy courses. Elective in all other Agricultural courses, first semester Junior or Senior year. Three hours credit.

X. Agricultural Economics. Required second semester Sophomore year in Science and Agriculture, Horticulture and Forestry and Dairy courses. Elective second semester Junior or Senior year in all other Agricultural courses. This course will consist of lectures and class reports. The topics discussed will include historical and comparative agricultural systems; land tenure; size of farms; cooperation; taxation; prices; transportation; marketing; land credit, the relation of the state to agriculture. Three hours credit.

DEPARTMENT OF DOMESTIC ECONOMY.

GEORGETTA WITTER, PROFESSOR.
RUTH MORRISON AND HELEN DONOVAN, ASSISTANT PROFESSORS.
MABEL CAMPBELL, LABORATORY ASSISTANT.

The widespread interest in Domestic Science springs largely from the increasing attention accorded to all social problems. The importance of the home as a social factor is paramount; and the application of science and of the scientific method to household management is coming to be regarded as a necessity. It is not surprising therefore that the study of the home, its function, its administration, its sanitary conditions, the preparation of foods, and a score of kindred topics should find place in the courses of instruction in colleges and universities. The study of Domestic Science is profitable not only because of its practical worth, but because of its educative value. Many sciences find direct application in the operations of housekeeping; it is consequently the aim of this department to present this home-study in such a way as to apply the knowledge gained in related and associated sciences. This study seeks at every point the health, convenience and comfort of the members of the household, and by its utility to add to the value of the well kept home.

The methods of instruction embrace the lecture system, text-book study, laboratory practice, demonstration lessons, class discussions, presentation of topics on assigned subjects by individual members of the class, and expeditions for observation and criticism. By a judicious combining of theory and practice, science and art, the student gains a thorough understanding of the underlying principles of Domestice Economy and at the same time acquires skill and deftness in execution. Upon completing a systematic course in this department a young woman is prepared to conduct her home successfully and with that ease which comes only through knowledge and experience.

The work of the Domestic Science department is that of applying the principles of the related sciences, Botany, Zoology, Chemistry, Physiology and Physics to the every day problems of the home. It does not constitute a special and separate course of study, but is one of the several lines included in the general College courses offered to women students and subject to the usual regulations concerning entrance requirements, classification, examinations, and class records.

The Domestic Economy department is located in an annex to Margaret Hall and on third floor of Agricultural Hall. It occupies eight rooms including offices, reading room, cooking laboratory, school kitchen, dining room, art room and sewing laboratory.

Students are advised not to enter in the second semester for the purpose of taking beginning work in Domestic Science, for there are no beginning classes at that time. The work of the second semester is a continuation of the work of the first semester.

Domestic Economy II, V, VIII, XVI, XVII, XX, XXI, XXII, XXIII, XXIV, XXV, XXVI and XXXI give science credit in Junior and Senior years in courses in Science and General and Domestic Science.

COURSES IN DOMESTIC ECONOMY.

Domestic Science.

II. Foods. Required first semester Junior year in Domestic Science and General and Domestic Science courses, and elective first semester Junior or Senior year in Science course. Includes a study of the method of cooking and the principles underlying the cooking of carbohydrates, proteids and fats; a study of the chemical composition, nutritive value, digestibility, cost, functions in the body, and the most wholesome and scientific method of preparing the various foods; also the preparation of many nourishing and appetizing dishes. The students are trained in accuracy, order and economy and in the general care of the kitchen and its utensils. Prerequisite, Chemistry II or

XXII. Classification in second semester of Chemistry also required. Recitation, one hour and laboratory, three hours per week. Fee, $3.00.

V. Foods. Required second semester Junior year in Domestic Science and General and Domestic Science, and elective Junior or Senior year in Science course. Continuation of Course II. Prerequisite, D. E. II. Two hours credit. Recitation, one hour and laboratory, three hours per week. Fee, $4.00.

VIII. Laundry Work. Elective first semester Junior or Senior year in all the Science courses. Study of soaps, washing fluids, bleaching powders, bluings and starches; their scientific and practical relation to laundry work, also actual work in the laundry. Prerequisite, Chemistry II or XXII. One three hour laboratory per week. Fee, $2.00.

IX. Theory of Teaching Domestic Science. Required first semester Senior year in Domestic Science course. Study of how Domestic Science should be presented to classes, planning of lessons, and study of the school kitchen. Two hours credit. Fee, $3.00.

X. Theory and Practice of Teaching. Required second semester Senior year in Domestic Science course. Actual experience of teaching and applying work of D. E. IX. Two hours credit. Fee, $3.00.

XVI. Home Sanitation. Required first semester Junior year in Domestic Science and elective first semester Junior or Senior year in Science and General and Domestic Science courses. Study of location and surroundings of the house, its plan, furnishing, and care from the sanitary standpoint, including plumbing, drainage, disposal of household waste, heating, lighting, ventilating and water supply. Prerequisite, Chemistry II or XXII. Text-book, Richards and Talbot's "Home Sanitation." Recitation, one hour per week. One hour credit.

XVII. Home Sanitation. Required second semester Junior year in Domestic Science and elective second semester Junior or Senior year in Science and General and Domestic Science courses. Continuation of D. E. XVI. Prerequisite, D. E. XVI. Recitation, one hour per week. One hour credit.

XX. Advanced Cookery. Required first semester Senior year in Domestic Science and General and Domestic Science course and elective in Science course. The application of heat to food materials; food principles and the fundamental laws of cookery; practical application of the chemistry of cookery; experiments to determine the relative value of different methods of work; and the effect of varying proportions of materials. Prerequisites, D. E. II and V. One laboratory period per week. Fee, $5.00.

XXI. Demonstration Work. Required second semester Senior year in Domestic Science and General and Domestic Science courses and elective in Science course. Prerequisites, D. E. II, V and XX. One laboratory period per week. Fee, $5.00.

XXII. Sickroom Cookery and Home Nursing. Required second semester Junior year in Domestic Science course and elective second semester Junior or Senior year in Science and General and Domestic Science course. A course of lectures given by a practicing physician, including the furnishing, warming, and ventilating the sick room; bathing, dressing and administering food and medicine to patients; practical bandaging and bed making, lifting and caring for helpless patients; preparation and application of poultices; also preparation of nourishing, palatable, and digestible dishes. One hour per week. Fee, $3.00.

XXIII. Home Management. Required second semester Senior year in Domestic Science and General and Domestic Science courses, and elective in Science course. Includes care of dining room and pantry, cut glass, silver, and cutlery; planning, buying, preparation and serving of breakfast, luncheon and dinners; food as an economical factor, dietaries and the administration of the home. Prerequisites, D. E. II, V, XX and XXIV. One laboratory period per week. Fee, $5.00.

XXIV. Dietaries. Required first semester Senior year in Domestic Science and General and Domestic Science courses and elective in Science course. The nature, nutritive constituents and relative value of foods; composition of common food materials. Prerequisites, D. E. II and V. Recitation, one hour per week.

XXV. Geography of Foods. Required first semester Junior year in Domestic Science and elective first semester Senior year in Science and General and Domestic Science courses. A study of production, transportation, preparation, adulteration and consumption of foods, also their market value as compared with their food value. Prerequisites in Science and General and Domestic Science courses, D. E. II and V. Recitation, one hour per week.

XXVI. Geography of Foods. Required second semester Junior year in Domestic Science and elective second semester Senior year in Science and General and Domestic Science. Continuation of Course XXV. Prerequisites in Science and General and Domestic Science courses, D. E. II and V. Recitation, one hour per week.

XXVII. Household Accounts. Required first semester Senior year in Domestic Science, elective first semester Junior or Senior year in Science and General and Domestic Science courses. A practical course in single entry bookkeeping, involving use of day book, ledger, cash book and bill book; practical work in making out bills and receipts in use of check book and pass book; also a study of business customs, notes, drafts, letters of credit, and banking. Recitation, one hour per week.

XXVIII. Chafing Dish Cookery. Elective second semester Senior year in all the Science courses. Showing how our much abused chafing dish may become an invaluable utensil in every household. Prerequisites, D. E. II and V. For girls only. One laboratory period per week. Fee, $3.00.

XXX. Seminar. Required second semester Senior year in Domestic Science course. A study of the history of Domestic Science courses as offered in our state and training schools, its value to the people of Iowa, and a study of the best way of presenting this work. One period per week.

XXXI. Dietaries. Required second semester Senior year in the Domestic Science course, elective second semester Senior year in Science and General and Domestic Science courses. A continuation of Course XXIV. Prerequisite, D. E. XXIV. Recitation, one hour per week.

XXXIII. School Methods. Elective first semester Junior year in Domestic Science course. A course of lectures dealing with the prominent educators and their relation to industrial work in our public schools. One hour credit. Recitation, one hour per week.

XXXIV. School Methods. Elective second semester Junior year in Domestic Science course. Continuation of Course XXXIII. One hour credit. One recitation per week.

Domestic Art.

I. Plain Sewing. Required first semester Freshman year in Domestic Science and General and Domestic Science and elective in Science course. Aims to give knowledge of various stitches in hand sewing. Study is made of the various fibers, their growth, processes of manufacture, and utility. Recitation, one hour and laboratory, one period per week. Fee, $1.00.

IV. Garment Work. Required second semester Freshman year in Domestic Science and General and Domestic Science and elective in Science course. Each student selects material, plans, cuts, fits, and finishes a set of underwear under the supervision of the instructor. Lecture work deals with the manufacture of fabrics and the evolution of textile machinery, the history of rug and tapestry manufacture, and the making of minature looms of early designs. Prerequisite, Course I. Recitation, one hour and laboratory, one period per week. Fee, $1.00.

VI. Dressmaking. Required first semester Sophomore year in Domestic Science and General and Domestic Science courses and elective in Science course. A study of principles of shirt-waist making. Each student makes two unlined shirt-waists. The lectures include a study of clothing from the artistic, hygienic and philosophic standpoints; the value of textile materials; and the work of the Consumers' League and Sweat Shops. Prerequisites, Courses I and IV. Recitation, one hour and laboratory, one period per week. Fee, $1.00.

VII. Dressmaking and Basketry. Required second semester Sophomore year in Domestic Science and General and Domestic Science and elective in Science course. Continuation of Course VI. Each student makes an unlined shirt-waist suit. Instruction is given in raffia work, woven and sewed basketry. Lectures deal with Historic Costume. Prerequisites, Courses I, IV and VI. Recitation, one hour and laboratory, one period per week. Fee, $2.00.

XIV. Theory of Teaching Domestic Art. Elective first semester Junior or Senior year in Domestic Science course. Prerequisites, D. E. I, IV, VI and VII. One recitation and one laboratory per week. Fee, $3.00.

XXXII. Theory of Teaching Domestic Art. Elective second semester Junior or Senior year in the Domestic Science course. Continuation of Course XIV. Two hours credit. Recitation, one hour and laboratory, one period per week. Fee, $3.00.

XI. History of Art. Required first semester Senior year in Domestic Science, elective first semester Junior or Senior years in Science and General and Domestic Science courses. Architecture and Sculpture. The organic and typical forms of architecture are studied with relation to their origin, character and development, and their particular adaptation to the existing conditions as to building materials and the needs and ideals of men. Sculpture is studied for its own perfection of beauty and grace and its use as an adjunct of architecture. Recitations, two hours per week.

XII. History of Art. Required second semester Senior year in in Domestic Science course, elective second semester Junior or Senior year in Science and General and Domestic Science courses. Continuation of Course XI with Painting as principle subject. Recitations, two hours per week.

XIII. Home Decoration. Required second semester Senior year in Domestic Science and elective second semester Junior or Senior year in Science and General and Domestic Science. The principles of construction, ornamentation and color harmony are applied to furnishings and utensils and to the treatment of walls, floors and ceilings by means of lectures and specimens of textiles, wall papers, pottery, fine glass and silver. Recitation, one hour per week.

DOMESTIC ECONOMY WORK.

*Science Course.

FRESHMAN YEAR.

FIRST SEMESTER.

D. E. I. Plain Sewing.—2 hours, 1 rec., 1 lab.

SECOND SEMESTER.

D. E. IV.—Garment Work.—2 hours, 1 rec., 1 lab. Prerequisite III. D. E. I.

SOPHOMORE YEAR.

FIRST SEMESTER.

D. E. VI.—Dressmaking.—2 hours, 1 rec., 1 lab. Prerequisites, D. E. I. and IV.

SECOND SEMESTER.

D. E. VII.—Dressmaking and Basketry.—2 hours, 1 rec., I lab. Prerequisites, D. E. I., IV. and VI.

JUNIOR OR SENIOR YEAR.

FIRST SEMESTER.

D. E. II.—Foods.—2 hours, 1 rec., 1 lab. Prerequisite, Chem. II., also classification in Chem. V. required.

D. E. VIII.—Laundry Work.—1 hour, 1 lab. Prerequisite, Chem. III.

D. E. XVI.—Home Sanitation.—1 hour, 1 rec. Prerequisite, Chem. II.

****D. E. XX.—Advanced Cookery.**—1 hour, 1 lab. Prerequisites, D. E. II. and V.

****D. E. XXIV.—Dietaries.—1** hour, 1 rec. Prerequisites, D. E. II and V.

****D. E. XXV.—Geography of Foods.**—1 hour, 1 rec. Prerequisites, D. E. II. and V.

D. E. XXVII.—Household Accounts.—1 hour, 1 rec.

D. E. XI.—History of Art.—2 hours, 2 rec.

SECOND SEMESTER.

D. E. V. — Foods. — 2 hours, 1 rec., 1 lab. Prerequisite, D. E. III.

D. E. XVII.—Home Sanitation. —1 hour, 1 rec. Prerequisite, D. E. XVI.

****D. E. XXI.—Demonstration** Work.—1 hour, 1 lab. Prerequisites, D. E. II., V. and XX.

D. E. XXII.—Sickroom Cookery and Home Nursing.—1 hour, 1 lab.

****D. E. XXIII.—Home management.**—1 hour, 1 lab. Prerequisites, D. E. II., V., XX. and XXIV.

****D. E. XXVI.—Geography of Foods.**—1 hour, 1 rec. Prerequisites, D. E. II and V.

****D. E. XXVIII.—Chafing Dish Cookery.**—1 hour, 1 lab. Prerequisites, D. E. II. and V.

****D. E. XXXI.—Dietaries.**—1 hour, 1 rec. Prerequisite, D. E. XXIV.

D. E. XII.—History of Art.—2 hours, 2 rec.

D. E. XIII.—Home Decoration. —1 hour, 1 rec.

**Senior year only.
*Elective.

GENERAL AND DOMESTIC SCIENCE COURSE.

FRESHMAN YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. I.—Plain Sewing.—2 hours, 1 rec., 1 lab.	**D. E. IV.—Garment Work.**—2 hours, 1 rec., 1 lab.

SOPHOMORE YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. VI.—Dressmaking.—2 hours, 1 rec., 1 lab.	**D. E. VII.—Dressmaking and Basketry.**—2 hours, 1 rec., 1 lab.

JUNIOR YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. II.—Foods.—2 hours, 1 rec., 1 lab.	**D. E. V.—Foods.**—2 hours, 1 rec., 1 lab.

SENIOR YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. XX.—Advanced Cookery 1 hour, 1 lab.	**D. E. XXI.—Demonstration Work.**—1 hour, 1 lab.
D. E. XXIV.—Dietaries.—1 hour, 1 rec.	**D. E. XXIII.—Home Management.**—1 hour, 1 lab.

Elective in Junior or Senior Years.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. VIII.—Laundry Work.—1 hour, 1 rec.	**D. E. XVII.—Home Sanitation.**—1 hour, 1 rec. Prerequisite, D. E. XVI.
D. E. XVI.—Home Sanitation.—1 hour, 1 rec.	**D. E. XXII.—Sickroom Cookery and Home Nursing.**—1 hour, 1 lab.
***D. E. XXV.—Geography of Foods.**—1 hour, 1 rec. Prerequisites, D. E. II. and V.	***D. E. XXVI.—Geography of Foods.**—1 hour, 1 rec. Prerequisites, D. E. II. and V.
D. E. XXVII.—Household Accounts.—1 hour, 1 rec.	***D. E. XXVIII.—Chafing Dish Cookery.**—1 hour, 1 lab. Preresites, D. E. II and V
D. E. XI.—History of Art.—2 hours, 2 rec.	***D. E. XXXI. — Dietaries.** — 1 hour, 1 rec. Prerequisite, D. E. XXIV.
	D. E. XII.—History of Art.—2 hours, 2 rec.
	D. E. XIII.—Home Decoration.—1 hour, 1 rec.

---

*Senior year only.

DOMESTIC SCIENCE COURSE.

FRESHMAN YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. I.—Plain Sewing.—2 hours, 1 rec., 1 lab.	**D. E. IV.—Garment Work.**—2 hours, 1 rec., 1 lab.

SOPHOMORE YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. VI. Dressmaking. — 2 hours, 1 rec., 1 lab.	**D. E. VII.—Dressmaking and Basketry.**—2 hours, 1 rec., 1 lab.

JUNIOR YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. II.—Foods.—2 hours, 1 rec., 1 lab.	**D. E. V.—Foods.**—2 hours, 1 rec., 1 lab.
D. E. XVI—Home Sanitation.—1 hour, 1 rec.	**D. E. XVII—Home Sanitation.**—1 hour, 1 rec.
D. E. XXV. — Geography of Foods.—1 hour, 1 rec.	**D. E. XXII.—Sickroom Cookery and Home Nursing.**—1 hour, 1 lab.
Elective.	**D. E. XXVI.—Geography of Foods.**—1 hour, 1 rec.
D. E. VIII.—Laundry Work.—1 hour, 1 lab.	

Electives.

D. E. XIV.—Theory of Teaching Domestic Art.—2 hours, 1 rec., 1 lab.	**D. E. XXXII.—Theory of Teaching Domestic Art.**—2 hours, 1 rec., 1 lab.
D. E. XXXIII.—School Methods. 1 hour, 1 rec.	**D. E. XXXIV.—School Methods.** 1 hour, 1 rec.

SENIOR YEAR.

FIRST SEMESTER.	SECOND SEMESTER.
D. E. IX.—Theory of Teaching Domestic Science.—2 hours, 1 rec., 2 lab.	**D. E. X.—Theory and Practice of Teaching.** — 2 hours, 1 rec., 1 lab.
D. E. XX.—Advanced Cookery.—1 hour, 1 lab.	**D. E. XXI.—Demonstration Work.**—1 hour, 1 lab.
D. E. XXIV.—Dietaries.—1 hour, 1 rec.	**D. E. XXIII.—Home Management.**—1 hour, 1 lab.
D. E. XXVII.—Household Accounts.—1 hour, 1 rec.	**D. E. XXX.—Seminar.**—1 hour, 1 rec.
D. E. XI.—History of Art.—2 hours, 2 rec.	**D. E. XII.—History of Art.**—2 hours, 2 rec.
Elective.	**D. E. XIII.—Home Decoration.**—1 hour, 1 rec.
D. E. VIII.—Laundry Work.—1 hour, 1 lab.	Elective.
	D. E. XXVIII.—Chafing Dish Cookery.—1 hour, 1 lab.
	D. E. XXXI.—Dietaries.—1 hour, 1 rec.

Electives.

D. E. XIV.—Theory of Teaching Domestic Art.—2 hours, 1 rec., 1 lab.

D. E. XXXII.—Theory of Teaching Domestic Art.—2 hours, 1 rec., 1 lab.

DEPARTMENT OF PSYCHOLOGY.

ORANGE HOWARD CESSNA, PROFESSOR.

Courses in Psychology.

I. Psychology. Electives first semester Junior or Senior year in all Agricultural and Science courses. Elements and outlines of Psychology. Standard text is used supplemented by lectures and laboratory work. Recitations, five hours per week.

II. Ethics. Elective second semester Junior or Senior year in all Agricultural and Science courses. This course covers both theoretic and practical ethics and is based on standard texts such as MacKenzie's and Muirhead's Manuals. The text-books are supplemented by library work and lectures. Recitations, three hours per week.

III. Advanced Psychology. Elective second semester Junior or Senior year in all Science and Agricultural courses. This course treats of some of the advanced phases of psychology as suggestion, hypnotism, the subconscious self and the psychology of the crowd. Text-book, lectures and laboratory work. Prerequisite, Psychology I. Three hours per week.

DEPARTMENT OF LITERATURE AND RHETORIC.

ALVIN B. NOBLE, PROFESSOR.

MISS LARRABEE AND MISS MACLEAN, ASSISTANT PROFESSORS.

MISS BAKER, MISS MOORE, MISS TOMPKINS, MISS VAULX,

MISS GEYER AND MR. RAYMOND, INSTRUCTORS.

In the courses in English two ends are sought, utility and culture. Utility predominates in the first years and culture in the last, though there is hardly a recitation but contains something of both.

So long as man communicates his thoughts and feelings to his fellows, so long will language have a practical value. The man who speaks in a bungling manner, only half succeeds in communicating his thoughts to others. If they catch his real meaning they do it by a happy inference of their own as to what he meant to say. But no man can afford—certainly no college man can afford—to depend on others to correct his own faulty speech. If he uses the wrong word, arranges the parts of the sentence improperly, gives some part an undue emphasis, or fails to indicate clearly the bearing of one sentence upon another, his language does not truly present his thought, and the world may profit little from his attempt to state it. The more valuable his thought, the greater his need for a clear and effective use of language.

If the student has mastered grammar and rhetoric, that is if he has been trained to *apply* the principles gone over, his speech should be free from errors and inaccuracies of expression. More than this: if he has been directed to the study of good models, if he has been taught not merely to correct what is faulty, but also—and this is far more important—to appreciate what is excellent in diction, in sentence structure, in the development of paragraphs and of whole compositions—if he has been made to feel the increased utility, the beauty and the power of language as used by the masters of expression, he will not be content to use language that has only the negative merit of being without faults, but will press on to attain a style enriched by the presence of real excellence, a positive quality. Such language is not simply clear and accurate, it is pleasing and powerful, and the man who has acquired such skill in the use of language has greatly increased his influence in the world. If he can give his valuable thought an adequate expression, his fellows will learn the thought from him, and give him honor accordingly; if he cannot, they will learn it from one who can state it more clearly or more attractively, and the reward is quite as likely to go to the man who best states the thought as to the one who first discovers it.

The courses in grammar, rhetoric, and composition are devoted primarily to this utilitarian end. The facts and principles of language are studied, not as valuable in themselves, but as useful when applied in spoken or written discourse. To this end the student is required to write much, always with some definite object to be accomplished, and usually with some good model before him to inspire him to more earnest effort. When once he has learned to draw from his reading suggestions that will be helpful in his future compositions, he has found a possible utility in everything he studies as literature and has opened the door to continual improvement. Moreover, in learning to appreciate what is best in the models set before him, he gains insensibly something of culture as well as of utility.

The course in debating is designed as a training toward the effective discussion of live topics. Wherever he goes the college graduate is expected to have opinions of his own on the topics of the day, to be able to state them clearly and forcibly, and, if need be, to defend them. To this end he should train himself to close analysis of complex problems, to a severe testing of every conclusion, his own as well as other people's. Moreover, the public will not wait for him to retire to his study for labored preparation. They expect him to be ready when the occasion calls, and they have generous rewards for the man who is ready—ready to map out a clear-cut line of argument, ready to support it with proofs, and able to present it clearly and forcibly in off-hand discussion. Such readiness comes only from long-continued right-thinking and clear-speaking. It is the aim of this course to start the student toward this goal.

In the courses in Literature it is probably true that the culture side predominates, yet utility is seldom lacking. The study of Literature calls for close observation, correct inference, fine discrimination. When the mind is trained to do such work, it acquires a power that abides, a power that can be applied to any task. Literature deals with the whole range of human experience, emotion, activity. In studying Literature, therefore, we are required to give some study to the mind and heart of man. If such study does not exert an elevating influence, it can only be because the reader does not choose the best, or does not approach the work in the right spirit. At the very least it ought to give him a deeper insight into human nature, and that is no small gain. But Literature is also an art, an art that engages the attention of more people, and holds that attention for a longer time than does any other art. In studying it, therefore, we are cultivating the aesthetic sense, a part of our nature not appealed to by most studies. Best of all, perhaps, it brings us into the company of the rarest minds of all times; it gives command of the best thought of the best minds; it brings to us the "blessed companionship of wise thoughts and right feelings." It broadens the mind, quickens the imagination, enlarges the sympathies, enriches the whole nature.

COURSES IN ENGLISH.

I. Grammar. Required first semester Academic year in Engineering and Science courses; also of Academic students in Agricultural courses, who need it in preparation for English II. Syntax of good modern prose; copious analysis, with emphasis on phrases and clauses as structural units of the sentence, and careful study as to their proper position and connection; daily drill in sentence construction, the application of what the student has learned from sentence analysis; study of the principles of punctuation, with drill in applying them; correction of errors in grammar. Study of language direct, with as little use of text-book as circumstances will permit. Designed to give that ready command of the sentence that shall leave the student free to seek excellence of structure without needing to give conscious thought to correctness. For admission to this course students must pass an examination on the eight parts of speech, their subdivisions, inflections, and properties, or else present a teacher's certificate or a satisfactory grade in a good high school. Offered both semesters. Recitations, five hours per week. Fee, $.25.

II. Rhetoric and Composition. Required second semester Academic year in Engineering and Science courses, and first semester Academic year in Agricultural courses. Largely a study of the paragraph. Careful analysis of good models, followed by compositions designed to apply the methods just analyzed. An essay once a week, with exercises almost daily; each student to correct the mistakes he has made. Text-book, Espenshade's Composition and Rhetoric. Prerequisite, English I., taken in class or by examination. If a student's essays show need of further drill in grammar or punctuation, he will be required to make up the deficiency. Offered both semesters. Recitations, five hours per week.

VI. Composition. Required second semester Sophomore year in Agricultural, Engineering, and Science courses. Weekly themes and briefs in argumentation. Prerequisites, English III, IV and V. Will not be given after fall semester, 1907. Recitation, one hour per week. Fee, $.25.

VII. Debating. Elective first semester Junior year in Engineering, and elective first semester Junior or Senior year in all Agricultural and Science courses. A course in stating and defining questions for debate, in making briefs, and in extemporaneous debating; the application of argumentative principles and methods to live topics. Prerequisite, the old courses, English III, IV, V and VI, or the new courses, English X, XI and XII. Recitation, one hour per week.

VIII. Debating. Elective second semester Junior year in Engineering and elective Junior or Senior year in all Agricultural and

Science courses. Continuation of Course VII. Recitation, one hour per week.

X. Narration and Description. Required first semester Freshman year in Agricultural, Engineering, and Science courses. A study of good models in these two forms of discourse, with lectures on the principles to be observed and the methods to be employed; careful attention to making plans and outlines; an essay once a week, with an exercise almost daily; also constant emphasis on the ability of the student to apply in his own composition the principles studied. Prerequisites, English I, II and Literature IX, taken in class or by examination, or diploma from a fully accredited high school. If a student's essays show imperfect preparation, he will be required to make up the deficiency. Offered both semesters. Recitations, three hours per week. Fee, $.75.

XI. Exposition. Required second semester Freshman year in Agricultural, Engineering and Science courses. Study and practice in expository writing, following same general method as in Course X. Prerequisite, Course X. Offered both semesters. Recitations, three hours per week. Fee, $.75.

XII. Argumentation. Required first semester Sophomore year in all Engineering courses, also in the following Agricultural courses: Agronomy, Dairying, Science and Agriculture. Required second semester Sophomore in all Science courses, also in the Animal Husbandry and Horticulture courses. A study of the principles of argumentation, with analysis of good models. Practice in making briefs and in writing forensics. Prerequisites, English X and XI. Recitations, two hours per week. Fee, $.50.

COURSES IN LITERATURE.

I. English Drama. Elective first semester Junior or Senior year in all the Agricultural and Science courses. Devoted mainly to a study of Shakespeare, with a rapid survey, largely by reports and informal lectures, of the English Drama before his time, and a rapid reading of one or two dramas of subsequent time. In Shakespeare three or more plays will be studied carefully and one or two others read rapidly. Character analysis and interpretation, with grouping and contrast. Plot analysis, with stages of complication and resolution. Prerequisite, English III and IV, or X and XI. Recitations, three hours per week.

II. Epic and Lyric Poetry. Required second semester Sophomore or Junior year in General and Domestic Science, elective second semester Sophomore, Junior or Senior year in Science and Domestic Science courses, elective second semester Junior or Senior year in all Agricultural courses. A course in English poetry, excluding the drama. Selections from Milton, Pope, Coleridge, Wordsworth, Shelley, Keats, Tennyson, and Browning. Classification of the various forms of poetry. Study of rhythm, meter, rhyme, alliteration, figures of speech, melody, harmony, etc. Principles of criticisms applicable to the poems studied. Prerequisites, English III and IV, or X and XI. Literature I or V, though not strictly necessary, will be of great help. Recitations, five hours per week.

III. Novel and Romance. Elective second semester Junior or Senior year in all Agricultural and Science courses. A course in the novel and romance from the eighteenth century to the present time; differences between the two forms; comparison with the drama; plot and character analysis; an outline for systematic study. Prerequisites, same as in Literature II; Literature VI will also be of help. Recitations, three hours per week.

IV. American Literature. Elective first semester Junior or Senior year in all Agricultural and Science courses. A study of our best poets and essayists; comparison with English authors and works; interrelations of our Literature and History; also the prominent writers of the present day. Prerequisites, the required courses in English; and Literature II will be of help. Recitations, three hours per week.

V. The Drama. Required first semester Sophomore year in General and Domestic Science, elective first semester Sophomore, Junior or Senior year in Science and Domestic Science courses. Combination of Courses I and VIII. Prerequisite, English III and IV, or X and XI. Recitations, five hours per week.

VI. The Short Story. Elective first semester Junior or Senior year in all Agricultural and Science courses. A study of the short story from the time of its development as a distinct literary form to the present time; the various types and classes of the short story, with principal attention to the product of the last fifty years in France, England, and the United States. Prerequisites, required courses in English, and Literature I or V. Recitations, two hours per week.

VII. The Essay. Elective second semester Junior or Senior year in all Agricultural and Science courses. The leading English essayists, as Addison, Steele, DeQuincey, Macaulay, Carlyle, Ruskin, and

Matthew Arnold. Prerequisites, the required courses in English. Recitations, two hours per week.

VIII. The Drama in Translation. Elective first semester Junior or Senior year in all Agricultural and Science courses. A study of the leading Greek, French, and German dramatists through an English translation. May be taken as a part of Course V or independently. Prerequisites, the required courses in English. Recitations, two hours per week.

IX. English Classics. Required third semester Academic year in Engineering and Science courses, second semester Academic year in the Agricultural course. A course in English Classics, including an elementary study of the forms of literature in both prose and poetry, and of the principles underlying each. Taken up mainly as an incentive to wider and more thoughtful reading, and as an approach to a more intelligent and discriminating appreciation. Prerequisites, English I and II. Offered both semesters. Recitations, five hours per week.

DEPARTMENT OF PUBLIC SPEAKING.

ADRIAN M. NEWENS, PROFESSOR.
SYBIL LENTNER, INSTRUCTOR.
WINIFRED TILDEN, INSTRUCTOR IN PHYSICAL CULTURE.

The relation of the work of this department to the college course is the same as that of any other study. In some courses Public Speaking is elective, in some, it is required; the credits are given on a basis with every other required or elective study. We aim to equip men and women to speak well, to tell what they know and give their opinions, to read and recite in a pleasing and effective manner. All will be called upon at some time to speak publicly, all talk every day, more or less, and for both the more formidable speech and for conversation the work of the department is planned. The subjects which make for perfection along these lines are briefly; emphasis, enunciation, articulation, time, energy, inflection, appreciation of literature, voice culture, gesture, vocabulary, etc., etc.

Public Speaking has been and still is considered often as a special, peculiar and extraordinary art. There is no denying that it is an art, but first of all it is common sense; common sense applied to speech. The principles which govern conversation to make it dignified, pleasing and forceful may be called Elocution. The mastery of them would make the speaker artistic. These principles are not different when applied to public speech. Public speech is, therefore, conversation on an enlarged scale.

To reduce Public Speaking to a system is neither possible nor desirable. No one system can be made applicable to all persons, as no one style of clothing is appropriate to all classes and conditions of men. There are as many styles of elocution or systems of expression as there are people. Each one possesses an elocution of his own and that should not be taken from him and an inferior one for him be substituted. The development of that power and manner which one possesses already is our aim in the courses of study outlined below.

We grant that all so-called systems have good suggestions. We attempt to use the best of any and all methods, but the student himself is the system and he and his possibilities should be respected. The elimination of faults in speech which mar his efforts, and the correction of mannerisms that hinder his success are subjects of adverse criticism. To stand and think and talk well at one and the same time should be the ambition of every student, man or woman, in his chosen occupation. The theory and practice of Expression,—and speech is more practice than theory,—covers four years of work to those who begin in the Academic year, three years to those who begin as Freshmen. However, not all the college courses grant electives in this department with credit, though none are excluded if the proper consent is given.

Special Announcement of Courses in Extempore Speech.

The courses in Extempore Speech are designed to give students practical training in speaking without notes or without having written and committed to memory a formal address. There is a great demand for men, who are well versed in the sciences and industries as offered in the several departments of the College, to address institutes, conventions, clubs and commissions on topics related to their chosen work. At gatherings formal and informal that person is in demand who can say the right thing at the right time and in the right way. It is a worthy accomplishment to be able to speak well upon any occasion. For all such these courses aim to prepare the student. They are in every way practical. The student from the very first is called to the floor to address his class on assigned topics. He is given from three days to a week to gather his material and get it ready for his appearance before the class. As often as once a week each individual is on the floor, oftener if possible. He is subjected to criticisms by the class and the instructor. Criticisms are offered on the prescribed lines of general appearance, force of address, arrangement of material, use of words, vocabulary, etc., etc. By subjecting himself to this severe scrutiny, and by the frequency of his addresses, the student gains an acquaintance with himself and a habit of thinking on his feet, which is real experience in speechmaking, second only to that which he would gain in appearing before outside audiences.

COURSES IN PUBLIC SPEAKING.

II. Gesture and Voice. Required the second semester of the Academic year in all Agricultural courses and the second semester of the Freshman year in all Scientific courses. This course is planned to help the student get command of himself. Attention is especially given to voice building and bodily expression. Besides this technical work, students are assigned individual selection for practice and each is met for private rehearsal at regular intervals. One hour per week.

III. Interpretation. Elective the first semester of the Junior or Senior year in all Agricultural and Science courses. This is a course in the study of methods of vocal interpretation, methods of criticism and methods of delivery. Of each student is required a repertoire, and beside the class lectures and class exercises on topics pertaining to interpretation, each student is instructed privately and personally at stated intervals throughout the semester. Prerequisite, Course II or its equivalent. Two hours per week.

IV. Advanced Interpretation. Elective the second semester of the Junior or Senior year in all Agricultural and Science courses. This course is a continuation of Course III. Here character study is taken up and dramatic interpretation is begun. Methods of clipping and arranging stories into suitable readings are also studied. Students are met for private rehearsals and criticisms as in preceding courses. In this course class recitals are required. Prerequisites, Courses II and III. Two hours per week.

V. Dramatic Art. Elective the first semester of the Junior or Senior year in all Agricultural and Science courses. Option between courses V and X. It is a close study of dramatic recitations of all sorts, of the monologue, of the play and of the lecture-recital. Instruction is given by lectures and each student prepares one long and strong program, either a monologue or a lecture-recital, for the semester. Prerequisites, Courses II and III. Two hours per week.

VI. Advanced Dramatic Art. Elective the second semester of the Junior or Senior year in all Agricultural and Science courses. Option between VI and XI. This course is a continuation of Course V. Advanced dramatics, plays and lecture recitals are studied and prepared. Prerequisites, Courses II, III, IV or V. Two hours per week.

VII. Public Speech. Required the first semester of the Junior year in Domestic Science and General and Domestic Science courses. This is a course for women in the fine art of the spoken word. Though covering much the same ground as Course X, it is designed particularly to suit the needs of women. The art of speech is compared with other arts, speech forms and values are studied and much time is given to extempore speech making in class. Two hours per week.

VIII. Advanced Public Speech. Required the second semester of the Junior year in the Science and General and Domestic Science courses, and elective Junior or Senior year in all Agricultural courses. This course is a study of prepared and formal addresses such as orations and speeches for special occasions. Historical masterpieces and winning orations are studied, lectures are given on the technical structure of oratorical productions. At least one oration is required of each student during the semester. One hour per week.

IX. Oration. Required the first semester of the senior year in the Science course. Optional with course X. One oration is written under the personal direction of the head of the department. One hour credit.

X. Extempore Speech. Elective the first semester of the Junior or Senior year in all Agricultural courses and the Science course. Optional with course IX in the first semester of the senior year Science course. The purpose of this course is to develop the power of extemporaneous speaking. Following a course of eight lectures relating to the fundamental principles of speech, the student begins his own practical work of extemporization. During this semester the principles of Argumentation are studied, and the assigned topics which the students develop in their speeches are argumentative in nature. Each member of the class is supposed to deliver from eight to fourteen extemporaneous addresses during the term, which gives him some considerable practice in practical speech-making. Open to Juniors and Seniors only. No prerequisite course. Two hours credit.

XI. Advanced Extempore Speech. Elective the second semester of the Junior or Senior year in all Agricultural courses and the Science course. This course is a continuation of course X; the same methods are pursued in a more careful study of Exposition, Description and Narration. After these three literary forms are studied we review the Argumentative form. The year's work is closed by requiring of each student, instead of an examination, a lecture of considerable length on an assigned topic. These two courses, X and XI, are made as practical as time and methods will admit. There is no course absolutely prerequisite to course XI, although it is desirable to have the student elect course X in the first semester. Two hours per week.

NOTE—Engineering students may elect any of the courses in public speaking by first getting the consent of the Dean of Engineering.

XV. D. E. Extempore Speech. Required the first semester of the Senior year in the Domestic Science and General and Domestic Science courses. This course is for women only, and is designed to prepare them for extemporaneous demonstration work, and all sorts of speechmaking before their classes, women's clubs, institutes, and other organizations before whom women are asked to appear in the discussion of some topic of vital interest to the assembly. The purpose of the course is not different from the purpose of courses X and XI. We intend in this course to help women to stand and think and talk well before any audience without manuscript or notes; neither are the addresses written and committed to memory. No prerequisite course. Two hours credit.

Special Work in Public Speaking.

Besides these specified courses of instruction in class, numerous special lessons and drills are given in the nature of coaching. Special selections are assigned based on the needs of the student as seen in his class-room work and his defects and strengths are given special attention. Literary society declamatory and oratorical contest work is cared for by the teaching force of the department, such drill and preparation as each may need for his appearance in the contest are provided gratis.

PHYSICAL CULTURE FOR WOMEN.

Training in Physical Culture is required of the young women throughout the Freshman and Sophomore years. The work is given in two forty-five minute periods each week.

Before admission to the gymnasium classes, each student must be examined by the director with reference to physical development, strength of heart and lungs, and hereditary tendencies. These examinations with measurements are given at the beginning and close of each year's work. No student will be excused from the regular exercises except by order of the college physician.

The Swedish System of gymnastics, including marching tactics, calisthenics, and apparatus work, is taught. The highest ideals are kept constantly before the mind, not only health and strength, but ease, grace and refinement in manner and carriage of the body.

Facilities for basket-ball, tennis and field hockey are provided and tramping squads are arranged for those who prefer this form of exercise. During the first six weeks in the Fall and the last six weeks in the Spring, the physical training will be out of doors and each student may choose which of the above mentioned sports she prefers. The regular gymnasium work begins the middle of October and continues until the middle of April.

Gymnasium suits of dark blue serge or flannel, regulation blouse and bloomers, and gymnasium shoes are required.

COURSES IN PHYSICAL CULTURE.

I. Marching Tactics. Required the first semester of the Freshman year, of all young women in College. Exercises for correct standing, walking and breathing, marching tactics, figure marching. First term wands and games. Two hours per week. Fee, $1.00.

II. Calisthenics. Required second semester of the Freshman year of all young women in College. Calisthenics, marching tactics. Second term wands and dumb bells. Two hours per week. Fee, $1.00.

III. Light Apparatus. Required first semester of the Sophomore year of all young women in College. Second term dumb bells and Indian clubs. Light apparatus work. Two hours per week. Fee, $1.00.

IV. Swedish Gymnastics. Required second semester of the Sophomore year of all young women in College. Bar bells, apparatus work, stall bars, ladders, rings, etc, Fee, $1.00.

DEPARTMENT OF MODERN LANGUAGES.

LIZZIE MAY ALLIS, PROFESSOR.
MISS NORTON, MISS LUCAS, MISS MCCOLLOM, MISS LOMMEN
AND MISS PETERS, INSTRUCTORS.

The College now offers a three years' course in French, German and Spanish.

COURSES IN MODERN LANGUAGE.

FRENCH.

I. French. Required second semester Academic year in Engineering and Science courses, first semester Freshman year in Agriculture, elective first semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course V and Course XXX. Fraser and Squair's French Grammar is used as text-book, supplemented by conversation and dictation exercises. Recitations, five hours per week.

II. French. Required third semester Academic year in Engineering and Science courses, required second semester Freshman year in Agriculture, elective second semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course VI and Course XXXI. Grammar continued, translation and study of "L'Abbè Constantin", Halevy and "Le Petit Robinson de Paris." Recitations, five hours per week.

III. French. Required first semester Freshman year in Science courses, elective first semester Junior or Senior year in all Agricultural and science courses. Option between this Course VII and Course XXXII. "La Belle Nivernaise," Daudet; "Colomba," Merimee; "Un Philosophe Sous Les Toits," Souvestre. Recitations, five hours per week.

IV. French. Required second semester Freshman year in Science courses, elective second semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course VIII and Course XXXIII. "Les Miserables," Hugo; "Monte Cristo," Dumas; A Scientific French Reader, Herdler. Recitations, five hours per week.

XVIII. French. Required first semester Freshman year in all four year Engineering courses. Option between this, Course XX and Course XXXVI. Composition work and Scientific French. Recitations, three hours per week.

XIX. French. Required second semester Freshman year in all four year Engineering courses. Option between this, Course XXI and Course XXXVII. Composition work and Scientific French. Recitations, three hours per week.

XXII. French. Required first semester Sophomore year in Science courses. Option between this, Course XXIV and Course XXXIV. French Literature. Recitations, five hours per week.

XXIII. French. Required second semester Sophomore year in Science courses. Option between this, Course XXV and Course XXXV. French Literature. Recitations, three hours per week.

German.

V. German. Required second semester Academic year in Engineering and Science courses, required first semester Freshman year in Agriculture, elective first semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course I and Course XXX. "Elements of German," Becker. Including grammar, composition, reading and conversation. Recitations, five hours per week.

VI. German. Required third semester Academic year in Engneering and Science, second semester Freshman year in Agriculture, elective second semester in Junior or Senior year in all Agricultural and Science courses. Option between this, Course II and Course XXXI. Continued drill in the principles of declension, conjugation and syntax. "Elements of German," Becker. "Immensee," Storm. Recitations, five hours per week.

VII. German. Required first semester Freshman year in Science courses, elective first semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course III and Course XXXII. "Hoher als die Kirche," Hillern, and "Willkommen in Deutschland," Mosher. Recitations, five hours per week.

VIII. German. Required second semester Freshman year in Science courses, elective second semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course IV and Course XXXIII. "German Science Reader," Gore; Works of Goethe and Schiller, conversation and study of syntax. Recitations, five hours per week.

XX. German. Required first semester Freshman year in all four year Engineering courses. German prose, narrative. Option between this and Course XVIII and Course XXXVI. Recitations, three hours per week.

XXI. German. Required second semester Freshman year in all four year Engineering courses. "German Science Reader," Gore. Option between this, Course XIX and Course XXXVII. Recitations, three hours per week.

XXIV. German. Required first semester Sophomore year in Science courses. Option between this, Course XXII and Course XXXIV.

"Elements of German Conversation," Vos; German Literature. Recitations, five hours per week.

XXV. German. Required second semester Sophomore year in Science courses. Option between this, Course XXIII and Course XXXV. German Literature. Recitations, three hours per week.

Spanish.

XXX. Spanish. Required second semester Academic year in Engineering and Science courses, required first semester Freshman year in Agriculture, elective first semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course I and Course V. "Introduccion a'la Lengua Sastellana," Marion and Garennes and "First Spanish Book and Reader," Giese. Grammar, composition and conversation. Recitations, five hours per week.

XXXI. Spanish. Required third semester Academic year in Engineering and Science courses, required second semester Freshman year in Agriculture, elective second semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course II and Course VI. Giese's Grammar continued, "First Spanish Book and Reader," Giese; Spanish Reader, Matzke. Recitations, five hours per week.

XXXII. Spanish. Required first semester Freshman year in Science courses, elective first semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course III and Course VII. Review of Grammar, Translation of El Final de Norma, Alarcón and Doce Cuentos Escogidos. Recitations, five hours per week.

XXXIII. Spanish. Required second semester Freshman year in Science courses, elective second semester Junior or Senior year in all Agricultural and Science courses. Option between this, Course IV and VIII. Translation and study of the works of some modern Spanish authors. Recitations, five hours per week.

XXXIV. Spanish. Required first semester Sophomore year in all Science courses. Option between this, Course XXII and Course XXIV. Continuation of course XXXIII. Recitations, five hours per week.

XXXV. Spanish. Required second semester Sophomore year in all Science courses. Option between this, Course XXIII and XXV. Study of Spanish Classics. Recitations, three hours per week.

XXXVI. Spanish. Required first semester Freshman year in all Engineering courses. Option between this, Course XVIII and Course

XX. Review of Grammar, Spanish Prose and "Cartillas Cientificas." Recitations, three hours per week.

XXXVII. Spanish. Required second semester Freshman year in all Engineering courses. Option between this, Course XIX and Course XXI. Reading of "Cartillas Cientificas" continued. Recitations, three hours per week.

MODERN LANGUAGES.

Agricultural Courses.

Freshman Year.

FIRST SEMESTER.					SECOND SEMESTER.				
French		German		Spanish	French		German		Spanish
I	or	V	or	XXX	II	or	VI	or	XXXI

All five hours per week.

Junior or Senior Years.

Electives.

French		German		Spanish	French		German		Spanish
I	or	V	or	XXX	II	or	VI	or	XXXI
III	or	VII	or	XXXII	IV	or	VIII	or	XXXIII

All five hours per week.

Engineering students are required to take two years of modern language—five hours each semester Academic and three hours each semester Freshman, except in case of graduates of fully accredited high schools presenting credits in two years of Latin or non-graduates of accredited or partially accredited schools presenting credits in three years of Latin may be allowed to enter Freshman in modern language providing they take the ten hours beginning work during their Freshman year.

ENGINEERING COURSES.

Academic Year.

SECOND SEMESTER.					THIRD SEMESTER.				
French		German		Spanish	French		German		Spanish
I	or	V	or	XXX	II	or	VI	or	XXXI

All five hours per week.

Freshman Year.

FIRST SEMESTER.					SECOND SEMESTER.				
French		German		Spanish	French		German		Spanish
XVIII	or	XX	or	XXXVI	XIX	or	XXI	or	XXXVII

All three hours per week.

Students entering the Science Division are required to take three years of modern language—five hours each semester Academic and Freshman, five hours first semester Sophomore and three hours second semester Sophomore, except in case of those students who have had two years of modern language in high school, who, if they continue the same language during the Freshman year will be allowed to substitute any optional of the same number of hours from the Sophomore or Junior years for the required Sophomore language.

Students from accredited or partially accredited high schools, presenting three years' of Latin will be allowed to take the language of the Academic and Freshman years and count it as the required Freshman and Sophomore language.

SCIENCE COURSES.

Academic Year.

SECOND SEMESTER.					THIRD SEMESTER.				
French		German		Spanish	French		German		Spanish
I	or	V	or	XXX	II	or	VI	or	XXXI

All five hours per week.

Freshman Year.

FIRST SEMESTER.					SECOND SEMESTER.				
French		German		Spanish	French		German		Spanish
III	or	VII	or	XXXII	IV	or	VIII	or	XXXIII

All five hours per week.

Sophomore Year.

FIRST SEMESTER.					SECOND SEMESTER.				
French		German		Spanish	French		German		Spanish
XXII	or	XXIV	or	XXXIV	XXIII	or	XXV	or	XXXV
Five hours per week.					Three hours per week.				

Junior or Senior Years.

Elective.

FIRST SEMESTER.					SECOND SEMESTER.				
French		German		Spanish	French		German		Spanish
I	or	V	or	XXX	II	or	VI	or	XXXI
III	or	VII	or	XXXII	IV	or	VIII	or	XXXIII

All five hours per week.

DEPARTMENT OF HISTORY.

ORANGE HOWARD CESSNA, PROFESSOR.
LOUIS BERNARD SCHMIDT, ASSISTANT PROFESSOR.
ETHYL CESSNA AND MARGARET STANTON, INSTRUCTORS.

COURSES IN HISTORY.

I. English History. Required first semester in all Academic courses. This course treats of the political, constitutional, religious, social and economic features in the development of Great Britain. Special attention is given to those influences which have effected American history. Text-book, library and written work. Prerequisite, one year of general history. Five hours credit.

II. Advanced American History. Required the second semester of Academic year in all Agricultural and third semester Academic year in Science courses. Presupposing an outline knowledge of European and American history, this course aims to give a maturer and more comprehensive view of American development. It corresponds to the American history offered in last year in accredited high schools. Text books, lectures and assignments. Four hours per week.

III. National Development, 1815 to 1850. Elective the first semester of Junior or Senior year in all Agricultural and Science courses. Results of the American Revolution; critical period and formation of Constitution; Federal and Republican supremacy; territorial expansion and great western movements, together with the social and political readjustments during the Jacksonian period and Slavery struggle to 1850. Text-book, lectures and research work. Three hours per week.

IV. Division and Reunion, 1850 to 1876. Elective the second semester of Junior or Senior year in all Agricultural and Science courses. Conditions preceding the Civil War, the causes, principal features and results of the struggle; the Reconstruction period; the political, social, and economic movements and foreign relations of America as it faces the problems of the present. Text-book, lecture and research work. Three hours per week.

V. Europe in the XVIth, XVIIth and XVIIIth Centuries. Required first semester Sophomore in Domestic Science and General and Domestic Science courses, elective first semester Junior in Agriculture and first semester Junior or Senior in Science. A study of historical development, the Reformation, struggle for constitutional liberty in

England, ascendency of France, rise of Prussia and Russia, England's Colonial supremacy, also social, economic and literary questions. Lectures and library work. Three hours per week.

VI. French Revolution and XIXth Century. Required as an optional with Economics X, in the second semester Sophomore year in Science and Agriculture, Horticulture and Forestry and Dairying course, required in the second semester of Junior year in Domestic Science and General and Domestic Science courses, elective in the Science and all Agricultural courses. Causes and results of the French Revolution, the Napoleonic era, reactions and revolutions of the XIXth Century to the close of the Franco-Prussian war; also institutional changes touching the political, social and economic aspects of the movement. Text-books, library, and lecture work. Three hours per week.

VII. The 19th Century (First Half.) Elective first semester Junior or Senior year in Engineering courses. Study of causes and significance of the French Revolution, the reactionary movements under Metternich and the Revolutions of 1830 and 1848. Lectures and library work. Two hours per week.

VIII. The 19th Century (Last Half). Elective second semester Junior or Senior year in Engineering courses. Review of French Revolution and the events of the early part of the century; the causes and results of the reconstruction of Europe during the last half of century; German and Italian unity; French Empire and Republic; Victorian Era in English History and the Far Eastern Question. Lectures, papers and library work. Recitations, two hours per week.

IX. The Far Eastern Question. Elective second semester Junior or Senior year in all Agricultural and Science courses. Questions growing out of the later developments in the Far East; study of world's movements at the beginning of the new century. Work based on Reinch's "World Politics at the Close of 19th Century." Lectures and library work. Recitations, two hours per week.

X. The Renaissance. Elective first semester Junior or Senior year in all Science and Agricultural courses. A general survey of renaissance period; the history of the movement in Italy and the northern countries; and agencies and events which ushered in the modern period. Text-book, lectures and assignments. Recitations, two hours per week.

XI. Constitutional History of England. Elective second semester Junior or Senior year in Science and Agricultural courses. Study of origin and development of the English constitution and political institutions, and their influence upon the American political system. Text-book, lectures and examination of documents. Recitations, two hours per week.

XII. Diplomatic History of the United States. Elective first se-ester Junior or Senior year in Science and Agricultural courses. A general survey of the larger questions of American diplomacy, together with a more detailed study of some particular portion of the field. Text-book, lectures and assignments. Recitations, two hours per week.

XVI. Advanced American History. Required second semester Academic year in all four year Engineering courses. Covers same general field as Course II. Prerequisite, Course I. Lectures and library work. Recitations, three hours per week.

XVII. The American People. Required in the first semester of either the Sophomore or Junior year in all Engineering courses. This course gives an outline view of the expansion of the American people. Special emphasis is given to the social and territorial features in this development, with special reference to the part played by the people in the making of the American nation. Lecture, text-book and library work. One hour per week.

XVIII. American Statesmen. Required second semester of either the Sophomore or Junior year in all Engineering courses. This course treats of the work of the leading statesmen in the formation and growth of the American nation. The different movements in the political evolution of a nation become embodied in great men. While emphasis is placed on movements rather than on biographical details, yet it is recognized that these movements become vitally expressed in personality. Lecture, text-book and library work. One hour per week.

XIX. Constitutional History. Required the first semester of the Freshman year in all Agricultural courses. This course treats of English and American constitutional development. A study of the historical evolution of free government with an analysis and critical estimate of some of the important documents. Lectures, text-book and library work. Two hours per week.

DEPARTMENT OF CIVICS.

RICHARD CORNELIUS BARRETT, PROFESSOR.

Civics as herein used means the science that treats of citizenship and of the relations between citizens and the government; ethics, or the doctrines of duty to society; civil policy, or governmental methods and machinery; law, in its application most directly involving the interests of society; history of civic development and movement, and the structure and working of the government and the interrelation of states.

While it is planned to give instruction concerning the American government as it now exists, the student will be expected to look forward to the solution of such problems as may confront the people and the government. At the same time such definite and fixed historical information will be expected from each student as will enable him to have a clear understanding of present governmental forms and practices.

No system of human government is perfect. The discussion of defective laws and the non-enforcement of present laws are common topics of conversation in every state.

Believing that in a republic where the people are supreme, an education is incomplete, if not a failure, that does not relate itself to the duties and opportunities of citizenship it will be a purpose to point out to the student a reasonable and patriotic duty touching present laws, and to aid him in all possible ways to become a useful, honored, and law abiding member of the civic community, and to give him suitable instruction with regard to public affairs.

The courses are planned to give such knowledge and training as it is believed should be a part of a liberal education.

The courses offered in Civics are more or less closely interrelated with those given in the Departments of History, and Economic Science, but it is believed that the association will prove in every way helpful to the student.

COURSES IN CIVICS.

I. Government in State and Nation. Required first semester Academic course in all Engineering and Science courses. Includes study of city, county, and state governments; constitutional conventions; constitutions as "Supreme Law;" checks and balances; the presidency, senate, and house of representatives; general powers of congress; judicial system, federal and state; division of power; comparison with other federal governments; spoils system and civil service; and government of territories and colonies. Text-book, supplemented by papers and library work. Recitations, two hours per week.

II. Principles of American Government. Elective first semester Junior or Senior year in all Science courses. Optional with Course

VII. Includes study of Magna Charta, Act of Habeas Corpus, Petition of Rights, Bill of Rights, Declaration of Independence, Articles of Confederation, First State Constitutions, Constitution of the United States, American Party System, and relation beween Federal and State Governments. Prerequisite, Course I or its equivalent. Individual investigations and library work. Recitations, three hours per week.

III. State and Federal Constitutions. Elective second semester Junior or Senior year in all Science courses. Includes study of the rise of American Union; distribution of powers of government; the powers of Congress, the legislature, and federal and state executive; the judicial department of state and federal government; government of the territories; admission of new states; civil rights and their guarantees; political privileges and their protections; protection of persons accused of crime and of contract and property; the eminent domain; and municipal corporations. Prerequisite, Course II. Text-book supplemented by lectures, papers and library work. Recitations, three hours per week.

IV. Citizenship. Elective second semester Junior or Senior Year in all Science courses. Includes study of the family and its government; conditions of good citizenship; rights and duties of citizens; citizen's duty to government; abuses and perils of government; improvement of government; economic duties of citizens; social rights and duties; great social subjects; treatment of criminals, paupers and incorrigible children; international duties, or the rights and duties of nations; ideals, or the higher law. Prerequisites, Courses II and III. Recitations, two hours per week.

V. Rural Law. Elective second semester Junior or Senior year in all Agricultural courses. A study of Iowa laws as related to highways, fences, weeds, water rights, ditching, drainage, live stock, trespassing; also the legal rights, duties and responsibilities of farmers; also contracts, negotiable instruments, sales and personal property. Recitation, one hour per week.

VI. Actual Government. Required first semester Freshman year in Domestic Science and General and Domestic Science course. A study of governmental systems, including state government and various phases of local government; the Constitution and Statutes as framework of the government and as dependent upon personal interest and action; also working experience of constitution and laws. Recitations, two hours per week.

VII. Comparative Government. Elective first semester Junior or Senior year in all Science courses. Optional with Course II. A comparative study of the governments of England, France, Germany, Switzerland, Canada, Mexico and the United States. Prerequisite, Course I or its equivalent. Recitations, three hours per week.

DEPARTMENT OF MILITARY SCIENCE AND TACTICS.

JAMES RUSH LINCOLN, PROFESSOR.

It is not intended to complete the education of the thorough soldier, but to fit young men for filling intelligently, positions in the State troops as line officers and company instructors. The constant demand for men thus trained emphasizes the value of a thoroughly organized and well sustained military course. The chief advantages derived are the acquirement of a dignified carriage of person, a gentlemanly deportment and a self respecting discipline, with habits of neatness, order and punctuality. Opportunities are afforded each cadet for extending the studies in military science, as desired, the College being provided with the necessary arms, accoutrements and outfits for drill and instructions in the infantry, artillery, and signal tactics, for which special classes will be formed. Lectures on military subjects are delivered throughout the course and regular battalion drill and parade take place each Monday and Wednesday afternoon.

All male students of the Freshman and Sophomore years, except such as may be excused on account of physical disability by proper authority, are required to become members of the College Battalion, and wear the prescribed military uniform during military exercises.

COURSES IN MILITARY SCIENCE AND TACTICS.

I. **Required** first semester Freshman year in Agricultural, Veterinary, Engineering and Science courses. Two drills per week.

II. **Required** second semester Freshman year in Agriculture, Veterinary, Engineering and Science courses. Two drills per week.

III. **Required** first semester Sophomore year in Agriculture, Veterinary, Engineering and Science courses unless regularly classified in Physical Training. Two drills per week, also the Non-Commissioned Officers' School of one hour per week, the School of the Guides and Guard Duty, required of all officers.

IV. Required second semester Sophomore year in Agriculture, Veterinary, Engineering and Science courses unless regularly classified in Physical Training. Two drills per week, also the Non-Commissioned Officers' School of one hour per week. Drill regulations and Guard Duty, required of all officers.

V. Elective first semester Junior year in Veterinary, Engineering and Science courses and first semester Junior or Senior year in all Agricultural courses. Two drills and Officers' School of one hour per week; Drill Regulations, Guard Duty, and Army Regulations.

VI. Elective second semester Junior year in Veterinary, Engineering and Science courses and second semester Junior or Senior year in all Agricultural courses. Continuation of Course V.

VII. Elective first semester Senior year in Veterinary, Engineering and Science courses and first semester Junior or Senior year in all Agricultural courses. Two drills and Officers' School of one hour per week; Service of security and Information, Military Engineering, Military Law and Military Hygiene.

VIII. Elective second semester Senior year in Veterinary, Engineering and Science courses and elective second semester Junior or Senior year in all Agricultural courses. Continuation of Course VII.

THE LIBRARY.

VINA ELETHE CLARK, LIBRARIAN.
CAROLYN GABRIELSEN, ASSISTANT LIBRARIAN.
MARGARET FORGEUS, CATALOGUER.
S. W. ALLEN AND ALLAN C. STELLE, STUDENT ASSISTANTS.

The College Library, consisting of over 20,000 volumes and 5,500 pamphlets, is chiefly a library of reference containing standard and technical works bearing particularly upon the lines of work pursued in the College. These include standard works of history, biography, engineering, agriculture, natural sciences, mental and moral philosophy, poetry, general literature and reference. The books are selected with great care, the heads of the departments indicating such works as they wish the library to have bearing upon their respective lines of work.

The library is classified according to the Dewey Decimal System of Classification and the card catalogue is in two parts, the Dictionary (author and title) and Classed.

The library has on file 5,500 unbound pamphlets, and is in constant receipt of large numbers of pamphlet publications from the various departments of the government, agricultural experiment stations and other sources. The library has also several hundred bound volumes of government publications, such as Geological Surveys, United States Experiment Station Bulletins, Congressional Record, Census Reports and Cabinet Officers' Reports.

The library receives about 225 periodical publications, literary, scientific and general, and there are complete files of many of these upon the shelves.

The library subscribes for several Chicago and Iowa dailies and, through the courtesy of the editors, a large number of the daily and county newspapers of Iowa are sent to the reading room for the use of students.

The reading room of the library is a large, well-lighted room, and is open to readers eleven hours daily, except Sundays, when it is open four hours. Current numbers of periodicals are kept in the reading room and are accessible to all, as are newspapers, college exchanges, dictionaries, encyclopaedias, Poole's Index, the card catalogue, etc.

Personal assistance and suggestions upon all matters relating to the library will be given by the librarian and assistant to all who desire such help.

COURSE IN LIBRARY WORK.

I. Library Work. Required first semester Freshman year in Agronomy, Dairy, Animal Husbandry, Horticultural, Science and Agriculture and Science courses. Four hours per semester.

DEPARTMENT OF MUSIC.

FRANK J. RESLER, DIRECTOR.
MRS. MARY ELIZABETH RESLER, INSTRUCTOR.

The general plan of instruction is similar to that of the best conservatories, and aims to cultivate in the pupil an intelligent appreciation of the noble and beautiful in Music. It is designed to lay a sound foundation upon which to build rather than to impart a superficial knowledge for the purpose of display. The branches taught are Piano, Pipe Organ, Voice Culture, Violin, History of Music and Sight Singing. For the completion of the work outlined, the College will grant a certificate.

Piano—Course of Instruction.

Grade 1.—Rudiments of Music.—Czerny, Op. 139. Graded course of studies. Mathews. Scales and chords.

Grade 2.—Concone Op. 24 or 30. Czerny Op. 299, No. 1. Heller Op. 47. Czerny Op. 299, No. 2. Concone Op. 25. Selected Octave studies, Czerny Op. 299, No. 3. Finger Gymnastics.

Grade 3.—Sonatas of Haydn. Songs without words, Mendelssohn. Five Sonatas of Mozart. One book of Heller's Studies of Expression or one of similar style and difficulty. Czerny Op. 834. Czerny Op. 553. Tausig's Daily studies. Miscellaneous selections.

Grade 4.—Cramer's fifty studies. Five Sonatas of Beethoven. Chopin, seven Waltzes, two Polonaises, three Mazurkas, three Nocturnes, one Ballade, one Scherzo, three Etudes. Tausig's daily studies. Miscellaneous selections.

Grade 5.—Clementi's Gradus ad Parnassum. Four selections from Bach, two from Rubenstein and Moczkowski each, four from Liszt and four concert pieces of various composers. Tausig's daily studies, second book finished. Kullak's octave studies.

Voice Culture.—Course of Instruction.

First Year.—The principles, theory and practice of tone production. Freedom of tone, breath control. Placing of the voice. Open throat Articulation. Legato style, color and character of voice on simple songs.

Second Year.—The development of technical facility. Exercises for flexibility. Phrasing and articulation. The development of self-expression in the interpretation of songs. Study of best English and American songs.

Third Year.—Advanced technical study. The study of recitative and advanced work in interpretation, public performance or preparation for teaching. Songs from the great masters, Schubert, Schumann and Franz.

Fourth Year.—The study of Advanced repertory. Selections from oratorio and opera. Preparation of recital for completion of course.

A one year's course in Sight Singing will be required for the completion of the Course in Voice Culture. Also, at least one year's study of the Piano.

For the completion of the Course in Piano at least one year's study of the Voice or Pipe Organ will be required.

The completion of either course will require the study of History of Music and the Theory of Music.

The candidate for a certificate from the College for the completion of either Course in Music shall possess an English education equivalent to admittance to the Freshman year of the College.

Instruction in violin is given by Miss Minnie Cedargreen, a graduate of the American Conservatory of Chicago. Miss Cedargreen is a very talented musician and a very capable instructor.

A Choral Society is maintained, membership being open to students and citizens of Ames. Such works as Barnby's Rebekah, Gaul's Holy City, Buck's Forty-Sixth Psalm, Coleridge Taylor's Hiawatha's Wedding Feast and Cowen's Rose Maiden have been successfully given in concert.

An excellent Male Glee Club gives concerts each semester. Membership in this organization is gained by examination.

Public concerts and recitals are given at frequent intervals during the year; also private recitals weekly, in which all Music pupils will be expected to take part.

Music students may enter at any time. Students may enroll for Music alone without additional expense.

Tuition.

For term of twenty lessons in any branch	$15.00

Piano Rent.

One hour daily practice	$3.50
Each additional hour	3.00

All tuition is due in advance to the director.

Absence from lessons will not be excused except in case of prolonged illness.

LIST OF STUDENTS

SENIOR HONOR STUDENTS, 1907.

Each of the following has the highest average standing in the course represented:

C. H. Stange, Course in Veterinary Medicine.
Mabel Rundall, Course in Science.
Geo. K. McCullough, Course in Civil Engineering.
J. C. Clark, Course in Electrical Engineering.
L. W. Ellis, Course in Agronomy.
B. W. Crossley, Course in Animal Husbandry.
Angie McKinley, Course in General and Domestic Science.
A. C. Perrin, Course in Mechanical Engineering.
Della Morris, Course in Domestic Science.
Jesse Elliott, Course in Dairying.
C. C. Clausen, Course in Mining Engineering.
K. A. Kupfer, Course in Horticulture.

Honors in the Literary Contests.

DECLAMATORY CONTEST, SPRING SEMESTER, 1906.

Oratorical—R. T. Lyons, Pythian.
Dramatic—C. R. Bush, Phileleutheroi.

ORATORICAL CONTEST, FALL SEMESTER, 1906.

First Prize—F. V. Skelley, Crescent.
Second Prize.—W. E. Packard, Pythian.
Third Prize—J. D. Woodruff, Welch.

Mr. F. V. Skelley represented the College February 22, 1907, in an oration entitled "America's Right to Live." First honors at the State Oratorical Contest.

INTER-COLLEGIATE DEBATES, SPRING SEMESTER, 1906.

I. State Triangular Debating League. Iowa College, Drake University, Iowa State College. First Annual Debate.

Question: "Resolved, That whenever an Interstate Commerce Commission shall find a railroad freight-rate unreasonable or unjustly discriminating, it shall have the power to prescribe a just, reasonable and equitable rate. Prescribed rate shall take place at once, and shall remain in effect until, and unless, reversed by the Federal Courts. Constitutionality waived."

Affirmative team for Iowa State College, at Ames, against Drake University:

A. Q. Adamson, Philomathean.

C. C. Clauson, Philomathean.

H. A. Sayre, Phileleutheroi.

Negative team for Iowa State College, at Grinnell, against Iowa College:

W. E. Packard, Pythian.

J. R. Hughes, Welch.

E. A. Sayre, Phileleutheroi.

FALL SEMESTER, 1906.

II. Debating League of Iowa State College and Iowa State Normal. Eleventh Annual Debate, first in the series of Dual Debates.

Question: "Resolved, That the United States is justified in imposing a tariff on the products of the Philippines."

The affirmative team for Iowa State College at Cedar Falls, against the Iowa State Normal:

L. D. Garberson, Welch.

C. A. Kupfer, Phileleutheroi.

O. A. Cohagen, Welch.

Negative team for Iowa State College, at Ames, against Iowa State Normal:

G. L. Martin, Phileleutheroi.

G. R. Bliss, Philomathean.

W. G. Langwill, Crescent.

INTER-COLLEGIATE DEBATES, SPRING SEMESTER, 1907.

III. State Triangular Debating League. (Iowa College, Drake University, Iowa State College). Second Annual Debate.

Question: "Resolved, That the Cities of the United States should own their Street Railways."

Affirmative team for Iowa State College, at Ames, against Iowa College:

A. A. Burger, Pythian.

E. S. Haskell, Pythian.

L. C. Schantz, Phileleutheroi.

Negative team for Iowa State College, at Des Moines, against Drake University:

C. V. Gregory, Welch.

A. C. Stelle, Bachelor.

G. T. Guthrie, Pythian.

INTER-SOCIETY DEBATES, SPRING SEMESTER, 1906.

Question: "Resolved, That the United States is justified in imposing a tariff on the products of the Philippine Islands."

H. E. Morrow, R. E. Reuling, Phileleutheroi vs. G. R. Bliss, W. H. Sawhill, Philomathean.

W. H. Peters, W. F. Schnaidt, Philomathean vs. A. G. Thurman, O. E. Atkinson, Welch.

L. D. Garberson, O. A. Cohagen, Welch vs. Will Francis, G. L. Martin, Phileleutheroi.

Geo. McCullough, John Jenkins, Bachelor vs. F. V. Skelley, Will Langwill, Crescent.

F. S. Dewey, O. W. Johnson, Crescent vs. C. B. Guthrie, E. S. Haskell, Pythian.

J. A. Chambers, J. T. Reynolds, Pythian vs. W. A. Danielson, Chas. Reading, Bachelor.

INTER-SOCIETY DEBATES, FALL SEMESTER, 1906.

Question: "Resolved, That the cities of the United States should own their Street Railways."

G. Bader, Geo. Wills, Bachelor vs. J. T. Reynolds, M. S. Saunders, Pythian.

R. T. Lyons, A. A. Burger, Pythian vs. H. W. Wagner, F. E. Tracy, Philomathean.

H. Haefner, C. C. Clauson, Philomathean vs. A. C. Stelle, R. S. Moore, Bachelor.

Will Langwill, W. S. Dudgeon, Crescent vs. A. G. Thurman, C. V. Gregory, Welch.

J. R. Hughes, Foster Campbell, Welch vs. J. O. Rankin, L. C. Schantz, Phileleutheroi.

J. E. Waggoner, G. M. Nelson, Phileleutheroi vs. J. L. Cox, G. H. Mack, Crescent.

ROSTER OF CADET CORPS AT IOWA STATE COLLEGE, 1906-7.

Commandant.

General James Rush Lincoln, Colonel 55th Regiment, Iowa National Guard.

First Battalion.

Major, W. A. Danielson. Adjutant, R. O. Littlejohn.

Company Officers.

COMPANY A.

Captain, L. E. Orcutt.
First Lieutenant, A. L. Hollingsworth.
Second Lieutenant, S. H. Hoyt.

COMPANY. B.

Captain, E. S. Baird.
First Lieutenant, V. D. Beard.
Second Lieutenant, H. E. Hanna.

COMPANY C.

Captain, A. G. Baker.
First Lieutenant, L. H. Baughman.
Second Lieutenant, C. W. Hendricks.

Second Battalion.

Major, P. H. Otteson. Adjutant, V. V. Law.

COMPANY D.

Captain, H. B. McElyea.
First Lieutenant, I. W. Stoddard.
Second Lieutenant, M. Billedo.

COMPANY E.

Captain, H. C. Smith.
First Lieutenant, R. F. Van Deventer.
Second Lieutenant, A. C. Ruppel.

COMPANY F.

Captain, H. W. Hall.
First Lieutenant, E. F. Ferrin.
Second Lieutenant, D. V. Butler.

Roster of Cummins Rifles.

Fall of 1906.

Captain, W. A. Danielson.
First Lieutenant, F. S. Dewey.
Second Lieutenant, H. B. McElyea.

SERGEANTS.

First, I. W. Farmer.
Quartermaster Sergeant, L. E. Orcutt.
H. E. Zorn. J. Beaty.
C. W. Hendricks. C. R. Bush.

POST GRADUATES.

Candidates for the Degree of Master of Scientific Agriculture.

Bower, John, B. S. A., (Ontario Agricultural College) 1906, Dairying, Harrison, Ontario, Canada.

Brown, Harry Farwell, B. S., (Iowa State College) 1898, Forestry, Ames, Iowa.

Buckman, Harry O., B. S. A., (Iowa State College) 1906, Agricultural Chemistry, West Liberty, Iowa.

Bustamante, Delfin Sanchez de, B. S. A., (Ontario Agricultural College) 1905, Agronomy, Adrogue, F. C. S., Argentine Republic, So. America.

Gardner, Victor Ray, B. S., (Michigan Agricultural College) 1905, Horticulture, Lansing, Michigan.

Gribben, Ray Larimer, B. S. A., (Iowa State College) 1906, Animal Husbandry, Minburn, Iowa.

Hooper, John Julian, B. Sc., (Texas Agricultural College) 1901, Animal Husbandry, Lexington, Kentucky.

Larson, Carl William, B. S. A., (Iowa State College) 1906, Agricultural Chemistry, Meltonville, Iowa.

Lynch, William Jefferson, B. S. A., (Iowa State College) 1905), Animal Husbandry, Green Mountain, Iowa.

Parr, Alfred Ernest, B. Sc., (Edinburgh University) 1904, Ph. D., (Leipzig University) 1906, Animal Husbandry, Park House, Ashley, Market Drayton, England.

Robbins, Ernest Thompson, B. S., (University of Illinois) 1900, Animal Husbandry, Ames, Iowa.

Schaub, Ira Obed, B. S., (Agricultural College of North Carolina) 1900, Agronomy, Oldtown, North Carolina.

Watson, Ebenezer Bliss, B. S. A., (Iowa State College) 1905, Agronomy, Ames, Iowa.

Candidates for the Degree of Master of Science.

Bartholomew, Charles Edgar, B. S., (Iowa State College) 1904, Zoology, Ames, Iowa.

Ness, Henry, B. S. A., (Iowa State College) 1905, Zoology, Ames, Iowa.

SENIOR.

NAME	COURSE	TOWN	COUNTY
Adamson, A. Q.,	C. E.,	Ankeny,	Polk.
Atherton, A. C.,	M. E.,	Ames,	Story.
Atkinson, O. E.,	M. E.,	Laurens,	Pocahontas.
Baker, Guy G.,	Vet.,	Rockwell City,	Calhoun.
Balthis, R. F.,	Hort.,	Des Moines,	Polk.
Barber, Walter,	C. E.,	Central City,	Linn.

Beyer, Harriett,	G. & D. S.,	Ames,	Story.
Biller, D. H.,	A. H.,	Hartington,	*Nebraska.*
Blackman, H. L.,	M. E.,	Ames,	Story.
Bolser, M. O.,	E. E.,	Le Mars,	Plymouth.
Bonebright, H.,	Agron.,	Ames,	Story.
Burrows, J. M.,	C. E.,	Des Moines,	Polk.
Cameron, Ernest A.,	E. E.,	Keswick,	Keokuk.
Campbell, Foster,	A. H.,	Newton,	Jasper.
Cave, J. H.,	C. E.,	Ames,	Story.
Chambers, John,	A. H.,	Corwith,	Hancock.
Clapper, L.,	C. E.,	Ames,	Story.
Clark, J. C.,	E. E.,	Ames,	Story.
Clauson, C. C.,	Min. E.,	Forest City,	Winnebago.
Claxton, Robert,	A. H.,	Fayette,	Fayette.
Cohagan, O. A.,	Agron.,	Blakesburg,	Wapello.
Cooper, R. L.,	C. E.,	Winterset,	Madison.
Coutts, R. V.,	M. E.,	Grinnell,	Poweshiek.
Crossley, B. W.,	A. H.,	Council Bluffs,	Pottawattamie.
Crum, R. W.,	C. E.,	Cedar Rapids,	Linn.
Dale, R. B.,	M. E.,	Cedar Rapids,	Linn.
Daniels, A.,	C. E.,	Marion,	Linn.
Danielson, W. A.,	E. E.,	Des Moines,	Polk.
Deming, R. M.,	C. E.,	Arlington,	Fayette.
Drennan, R. E.,	A. H.,	Mt. Etna,	Adams.
Dudgeon, Winfield,	Sci.,	Hedrick,	Keokuk.
Elliott, J. S.,	Dairy,	Woodward,	Dallas.
Ellis, L. W.,	Agron.,	Anamosa,	Jones.
Francis, Will,	C. E.,	Earlham,	Madison.
Furrow, H. L.,	C. E.,	Tripoli,	Bremer.
Gearhart, F. C.,	Vet.,	Ellsworth,	Hamilton.
Gilbert, P. L.,	Vet.,	Monona,	Clayton.
Grimm, Irving,	C. E.,	Clear Lake,	Cerro Gordo.
Grove, R. A.,	E. E.,	Rockwell City,	Calhoun.
Hall, A. G.,	C. E.,	Moravia,	Appanoose.
Hallowell, Ada,	G. & D. S.,	Dow City,	Crawford.
Hamilton, E. W.,	Agron.,	Hawarden,	Sioux.
Henninger, C. E.,	C. E.,	Council Bluffs,	Pottawattamie.
Henningson, H. H.,	E. E.,	Ellsworth,	Hamilton.
Herr, Gertrude,	Sci.,	Humboldt,	Humboldt.
Hicks, L. J.,	E. E.,	Monticello,	Jones.
Hoebel, O. L.,	C. E.,	Blairstown,	Benton.
Howard, H. M.,	C. E.,	Ames,	Story.
Hughes, J. R.,	E. E.,	Strawberry Pt.,	Clayton.
Hurd, Elmer,	E. E.,	Cherokee,	Cherokee.
Johnston, J. W.,	C. E.,	Marshalltown,	Marshall.
Kennedy, Maude,	G. & D. S.,	Collins,	Story.
King, P. M.,	M. E.,	Ames,	Story.
Kirkpatrick, R. Z.,	C. E.,	Winfield,	Henry.
Kupfer, C. A.,	Hort.,	Des Moines,	Polk.
Lage, John,	C. E.,	Manning,	Carroll.
Landes, C. C.,	E. E.,	Keosauqua,	Van Buren.

Leonard, Emma,	G. & D. S.,	Waukee,	Dallas.
Lister, Lillian,	Sci.,	Newton,	Jasper.
Long, Loren,	A. H.,	Ames,	Story.
Ludens, David,	C. E.,	Ames,	Story.
Lyder, L. C.,	M. E.,	Ellsworth,	Hamilton.
Lyman, R. A.,	C. E.,	Oskaloosa,	Mahaska.
McClean, G. T.,	C. E.,	Washington,	Washington.
McConnell, E. K.,	C. E.,	Des Moines,	Polk.
McCormick, C. M.,	E. E.,	Tipton,	Cedar.
McCullough, G. K.,	C. E.,	St. Ansgar,	Mitchell.
McCune, H. A.,	E. E.,	Ames,	Story.
McKinley, Angie,	G. & D. S.,	St. Ansgar,	Mitchell.
Mack, F. W.,	E. E.,	Storm Lake,	Buena Vista.
Madson, B. A.,	A. H.,	Ames,	Story.
Madson, Emma,	Sci.,	Ames,	Story.
Maresh, Frank,	C. E.,	Iowa City,	Johnson.
Mason, F. D.,	M. E.,	Adair,	Adair.
Mather, M. G.,	M. E.,	Clarksville,	Butler.
Meyling, T. T.,	M. E.,	Keokuk,	Lee.
Mills, M. A.,	C. E.,	Central City,	Linn.
Minert, T. R.,	C. E.,	Ames,	Story.
Moles, R. D.,	C. E.,	Central City,	Linn.
Moorehead, J. A.,	E. E.,	Ida Grove,	Ida.
Moreno, R. J.,	Vet.,	La Plata,	*Argentine Rep.*
Morgan, C. K.,	C. E.,	Northwood,	Worth.
Morris, Della J.,	D. S.,	Ames,	Story.
Morris, E. L.,	Agron.,	Linn Grove,	Buena Vista.
Morrow, H. E.,	Hort.,	Conrad,	Grundy.
Nash, Nellie,	G. & D. S.,	Ames,	Story.
Neely, J. B.,	C. E.,	Ames,	Story.
O'Banion, A. L.,	Vet.,	Storm Lake,	Buena Vista.
Packard, W. E.,	A. H.,	Ames,	Story.
Packer, J. H.,	A. H.,	Marshalltown,	Marshall.
Perrin, A. C.,	M. E.,	Ames,	Story.
Perry, Frank,	Sci.,	Ames,	Story.
Pettinger, Florence	G. & D. S.,	Cumberland,	Cass.
Pew, W. H.,	A. H.,	Youngstown,	*Ohio.*
Porter, B. G.,	A. H.,	Ames,	Story.
Potter, Lena,	G. & D. S.,	Ames,	Story.
Rea, Florence	G. & D. S.,	Holstein,	Ida.
Remington, B. S.,	C. E.,	Neola,	Pottawattamie.
Robb, Luella,	Sci.,	Ames,	Iowa.
Roby, C. A.,	C. E.,	Waterloo,	Black Hawk.
Rundall, Mabel,	Sci.,	Rodman,	Palo Alto.
Sayre, H. A.,	M. E.,	Perry,	Dallas.
Scherling, Gus,	E. E.,	Parkersburg,	Butler.
Schlegel, Ella,	Sci.,	Boone,	Boone.
Semmons, Harry G.,	E. E.,	Ames,	Story.
Shotwell, L. W.,	Min. E.,	Des Moines,	Polk.
Sieben, I. L.,	A. H.,	Geneseo,	*Illinois.*
Simpson, H. H.,	A. H.,	Knoxville,	Marion.

Skelly, F. V.,	E. E.,	Lost Nation,	Clinton.
Skinner, B. B.,	C. E.,	Osage,	Mitchell.
Smith, E. D.,	Dairy,	Galva,	Ida.
Snavely, W. A.,	E. E.,	Oxford,	Johnson.
Snyder, D. C.,	Sci.,	Center Point,	Linn.
Soukup, Edward,	E. E.,	Cedar Rapids,	Linn.
Stahl, Charles,	E. E.,	Walnut,	Pottawattamie.
Stange, C. H.,	Vet.,	Lowden,	Cedar.
Stanton, E. W., Jr.,	C. E.,	Ames,	Story.
Stewart, W. C.,	Vet.,	Maynard,	Fayette.
Taylor, P. P.,	Vet.,	Randalia,	Fayette.
Templeton, M. S.,	Sci.,	Ames,	Story.
Todnem, O. H.,	E. E.,	Ames,	Story.
Trotter, L. E.,	E. E.,	Ainsworth,	Washington.
Tunis, F. L.,	E. E.,	Ames,	Story.
Uhl, W. F.,	E. E.,	Mitchellville,	Polk.
Wallis, R. S.,	E. E.,	Ames,	Story.
Walters, Blanche,	G. & D. S.,	Ames,	Story.
Walters, H. L.,	E. E.,	Keokuk,	Lee.
Warren, C. I.,	C. E.,	Ames,	Story.
Watters, V. G.,	C. E.,	West Liberty,	Muscatine.
Wentworth, E. N.,	A. H.,	State Center,	Marshall.
Whallon, Paul,	E. E.,	Battle Creek,	Ida.
Whitacre, R. D.,	E. E.,	West Liberty,	Muscatine.
White, Fred,	C. E.,	Keosauqua,	Van Buren.
Whitehead, D. V.,	C. E.,	Pipestone,	*Minnesota.*
Willits, E. V.,	A. H.,	Union,	Hardin.
Wilson, L. A.,	C. E.,	Storm Lake,	Buena Vista.
Winkelhaus, L. C.,	C. E.,	Clinton,	Clinton.
Winslow, W. W.,	C. E.,	Ames,	Story.
Woods, J. F.,	E. E.,	Cedar Rapids,	Linn.

JUNIOR.

NAME	COURSE	TOWN	COUNTY
Allen, F. M.,	C. E.,	Knoxville,	Marion.
Anderson, A. L.,	Agron.,	Ames,	Story.
Andrews, E. D.,	C. E.,	Waterloo,	Black Hawk.
Arnold, R. A.,	A. H.,	Strawberry Pt.,	Clayton.
Arthur, E. E.,	A. H.,	Des Moines,	Polk.
Ayres, Frank,	E. E.,	Knoxville,	Marion.
Batchelder, H. S.,	A. H.,	Lyons,	Clinton.
Baxter, W. G.,	Hort.,	Galva,	Ida.
Beard, C. B.,	E. E.,	Des Moines,	Polk.
Beaumont, L. C.,	Vet.,	Kesley,	Butler.
Bechtle, Jennie,	G. & D. S.,	Le Mars,	Plymouth.
Bemis, H. E.,	Vet.,	Ames,	Story.
Berggren, A. E.,	M. E.,	Marshalltown,	Marshall.
Biggs, F. G.,	M. E.,	Anita,	Cass.

Black, R. E.,	M. E.,	Liscomb,	Marshall.
Blackwell, B. M.,	M. E.,	Newton,	Jasper.
Bliss, G. R.,	Hort.,	Corning,	Adams.
Breckerbaumer, H. E.,	Vet.,	Lewis,	Cass.
Breeden, F. L.,	E. E.,	Grinnell,	Poweshiek.
Brubacher, R. R.,	C. E.,	Storm Lake,	Buena Vista.
Bubke, H. P.,	E. E.,	Battle Creek,	Ida.
Buell, W. E.,	C. E.	Webster City,	Hamilton.
Burton, W. A.,	C. E.,	Delhi,	Delaware.
Cave, F. E.,	C. E.,	Ames,	Story.
Christian, H. L.,	C. E.,	Des Moines,	Polk.
Churchill, F. G.,	A. H.,	Sewal,	Wayne.
Cooper, H. J.,	E. E.,	Ames,	Story.
Correll, L. E.,	E. E.,	Eagle Grove,	Wright.
Davis, E. F.,	A. H.,	Corydon,	Wayne.
Deiling, N. J.,	Vet.,	Keokuk,	Lee.
Denmead, D. H.,	A. H.,	Marshalltown,	Marshall.
Dewey, F. S.,	E. E.,	Ames,	Story.
Dickey, A. J.,	E. E.,	Cedar Falls,	Black Hawk.
Douglass, W. H.,	C. E.,	Ames,	Story.
Dunlap, L. B.,	Vet.,	Shannon City,	Union.
Egloff, Ruth C.,	G. & D. S.,	Cedar Falls,	Black Hawk.
Farmer, I. W.,	C. E.,	Montezuma,	Poweshiek.
Forbes, W. A.,	A. H.,	Ames,	Story.
Forman, Elva,	G. & D. S.,	Ames,	Story.
Forsbeck, C. D.,	C. E.,	Gray,	Audubon.
Fraseur, Clara,	G. & D. S.,	Tipton,	Cedar.
Frudden, C. E.,	M. E.,	Charles City,	Floyd.
Fuhrmeister, R. S.,	A. H.,	Cedar Rapids,	Linn.
Garberson, L. D.,	Sci.,	Sibley,	Osceola.
Garner, E. R.,	Hort.,	Ames,	Story.
Garner, H. E.,	E. E.,	Ida Grove,	Ida.
Given, J. A.,	C. E.,	Des Moines,	Polk.
Graham, Guy G.,	Vet.,	Ames,	Story.
Green, S. R.,	C. E.,	Charles City,	Floyd.
Greer, S. W.,	C. E.,	Marion,	Linn.
Griggs, E. V.,	E. E.,	Ames,	Story.
Guernsey, S. C.,	A. H.,	Plano,	Appanoose.
Guthrie, G. T.,	Dairy,	Coin,	Page.
Hadley, I. D.,	Agron.,	Earlham,	Madison.
Haefner, Henry,	Hort.,	Charles City,	Floyd.
Halpenny, R. H.,	E. E.,	Ames,	Story.
Hargis, Sophie,	G. & D. S.,	Des Moines,	Polk.
Haskell, E. S.,	Agron.,	Des Moines,	Polk.
Hayden, Ada,	Sci.,	Ames,	Story.
Hayler, A. F.,	M. E.,	Ft. Dodge,	Webster.
Herron, L. S.,	A. H.,	Ewing,	*Nebraska*.
Higgins, F. H.,	A. H.,	Keswick,	Keokuk.
Hopkins, K. M.,	E. E.,	Villisca,	Montgomery.
Horn, H. C.,	E. E.,	Bedford,	Taylor.
Horneman, Herman,	Dairy,	Des Moines,	Polk.

Hunt, C. E.,	Vet.,	Ames,	Story.
Hurst, D. W.,	Vet.,	Ames,	Story.
Johnson, C. J.,	E. E.,	Ames,	Story.
Johnson, E. M.,	Vet.,	Ames,	Story.
Jones, Henry B.,	M. E.,	Humboldt,	Humboldt.
Jordan, R. F.,	M. E.,	Boone,	Boone.
Kilborne, Luella,	D. S.,	Ft. Dodge,	Webster.
Kildee, H. H.,	A. H.,	Osage,	Mitchell.
Kingsbury, Leonard,	Agron.,	West Branch,	Cedar.
Kinnebrew, Claud,	E. E.,	Ames,	Story.
Kreul, A. H.,	E. E.,	Laurens,	Pocahontas.
Lambert, Earl B.,	M. E.,	Newton,	Jasper.
Lampman, R.,	E. E.,	Sibley,	Osceola.
Langlois, E. L.,	Hort.,	Humboldt,	Humboldt.
Lewis, Louise,	G. & D. S.,	Scranton,	Greene.
Lttle, H. A.,	C. E.,	Webster City,	Hamilton.
Lyons, R. T.,	A. H.,	Center Junct.,	Jones.
McBirney, H. R.,	C. E.,	Conrad,	Grundy.
McKibben, H. B.,	M. E.,	Storm Lake,	Buena Vista.
Macomber, Stanley,	C. E.,	Ida Grove,	Ida.
Magsaysay, A.,	C. E.,	San Marcelino,	*Zambales, P. I.*
Martin, G. L.,	Dairy,	Spencer,	Clay.
Melvin, I. E.,	E. E.,	Siani,	Taylor.
Miller, Frank G.,	Vet.,	Storm Lake,	Buena Vista.
Miller, L. C.,	E. E.,	Webster City,	Hamilton.
Monroe, C. F.,	A. H.,	Ames,	Story.
Moore, Leonard J.,	E. E.,	Newton,	Jasper.
Moore, R. S.,	C. E.,	Davenport,	Scott.
Moore, W. E.,	C. E.,	Davenport,	Scott.
Mutch, Alex,	Agron.,	Reinbeck,	Grundy.
Nelson, James M.,	Vet.,	Brooklyn,	Poweshiek.
O'Donnell, R. F.,	A. H.,	Ames,	Story.
Olson, Oscar A.,	M. E.,	Linn Grove,	Buena Vista.
Oransky, Abe,	C. E.,	Des Moines,	Polk.
Otis, H. R.,	E. E.,	Ames,	Story.
Ottosen, P. H.,	C. E.,	Ft. Dodge,	Webster.
Parsons, B. F.,	M. E.,	Col. Junction,	Louisa.
Parsons, F. W.,	C. E.,	Mason City,	Cerro Gordo.
Patton, Merle C.,	C. E.,	Newton,	Jasper.
Paul, Denton,	C. E.,	Paullina,	O'Brien.
Peek, Welton,	A. H.,	Paullina,	O'Brien.
Person, Myrtie,	G. & D. S.,	Sibley,	Osceola.
Peters, W. H.,	A. H.,	Keokuk,	Lee.
Phillips, Howard,	A. H.,	Maquoketa,	Jackson.
Pierce, Foster H.,	Vet.,	Denison,	Crawford.
Price, W. O.,	C. E.,	Reinbeck,	Grundy.
Pullen, G. C.,	A. H.,	Onawa,	Monona.
Pullen, M. W.,	E. E.,	Onawa,	Monona.
Rail, Ellis,	A. H.,	Birmingham,	Van Buren.
Reading, C. M.,	Agron.,	Churdan,	Greene.
Renken, E. F.,	M. E.,	Parkersburg,	Butler.

Reynolds, John F.,	C. E.,	Storm Lake,	Buena Vista.
Robinson, A. I.,	E. E.,	Stockton,	Muscatine.
Robinson, H. E.,	Min. E.,	Sloan,	Woodbury.
Sackrison, Peter,	E. E.,	Williams,	Hamilton.
Sanders, M. S.,	C. E.,	Ft. Dodge,	Webster.
Schantz, L. C.,	E. E.,	Wayland,	Henry.
Scofield, W. J.,	C. E.,	Strawberry Pt.,	Clayton.
Scott, C. J.,	Vet.,	Ackworth,	Warren.
Secor, Florence,	G. & D. S.,	Melbourne,	Marshall.
Seeley, Burton A.,	Vet.,	Algona,	Kossuth.
Shaw, Ray P.,	E. E.,	Cornforth,	Poweshiek.
Simpson, E. J.,	E. E.,	Anamosa,	Jones.
Smith, Adah,	G. & D. S.,	Gladbrook,	Tama.
Smith, Burt R.,	C. E.,	Ames,	Story.
Smith, T. W.,	E. E.,	Renwick,	Humboldt.
Sones, C. M.,	E. E.,	Anamosa,	Jones.
Stebbins, A. W.,	M. E.,	Ellsworth,	Hamilton.
Storms, Lillian,	G. & D. S.,	Ames,	Story.
Strickler, W. L.,	E. E.,	Sibley,	Osceola.
Sturgeon, R. S.,	E. E.,	Clarion,	Wright.
Templeton, E. G.,	A. H.,	Ames,	Story.
Thayer, Starr,	E. E.,	Rock Valley,	Sioux.
Thompson, A. W.,	E. E.,	Davenport,	Scott.
Tiara, F.,	C. E.,	Polk,	Polk.
Tow, Edw.,	Vet.,	Le Grand,	Marshall.
Troup, James,	E. E.,	Sioux City,	Woodbury.
Van Brunt, E. S.,	E. E.,	Council Bluffs,	Pottawattamie.
Vandenburg, Ed.,	C. E.,	Kingsbury,	Plymouth.
Van Deventer, R. F.,	E. E.,	Hedrick,	Keokuk.
Van Gilst, Peter,	M. E.,	Kilduff,	Jasper.
Waggoner, J. E.,	E. E.,	Primghar,	O'Brien.
Whannell, H. J.,	E. E.,	Traer,	Tama.
Wheeler, Delbert,	C. E.,	Ireton,	Sioux.
White, E. L.,	Sci.,	Corydon,	Wayne.
Wieland, Albert L.,	M. E.,	Gladbrook,	Tama.
Williams, P. R.,	E. E.,	Clear Lake,	Cerro Gordo.
Wills, G. M.,	E. E.,	Eldora,	Hardin.
Wilson, Platt,	C. E.,	Montezuma,	Poweshiek.
Wolfe, R. F.,	Vet.,	Shannon City,	Union.
Yarnell, D. L.,	C. E.,	Le Mars,	Plymouth.
Zorn, H. E.,	E. E.,	Montezuma,	Poweshiek.
Zumwalt, A. R.,	Vet.,	Ames,	Story.

SOPHOMORE.

NAME	COURSE	TOWN	COUNTY
Alexander, C. O.,	M. E.,	Ames,	Story.
Alexander, Geo. W.,	E. E.,	Oskaloosa,	Mahaska.
Allen, S. W.,	Hort.,	Des Moines,	Polk.
Amesbury, H. C.,	C. E.,	Ames,	Story.

Amondson, O. L.,	M. E.,	Dows,	Wright.
Anderson, Gurine,	G. & D. S.,	Stanhope,	Hamilton.
Archer, Dorothy,	G. & D. S.,	Archer,	O'Brien.
Arthur, C. S.,	C. E.,	Spirit Lake,	Dickinson.
Austin, Jessie,	D. S.,	Webster City,	Hamilton.
Bader, G.,	Sci.,	Monticello,	Jones.
Bailey, Josephine,	G. & D. S.,	Malcom,	Poweshiek.
Baker, H. R.,	Min. E.,	Jefferson,	Greene.
Bakke, A. L.,	Sci.,	Forest City,	Winnebago.
Barrows, E. D.,	M. E.,	Ames,	Story.
Barton, Ray H.,	A. H.,	Luverne,	Kossuth.
Bassett, J. S.,	C. E.,	Sheldon,	O'Brien.
Beard, V. D.,	C. E.,	Osceola,	Clarke.
Beaty, John,	A. H.,	Madison,	*South Dakota.*
Bek, H. E.,	E. E.,	Massena,	Cass.
Belles, B. B.,	C. E.,	Fairfield,	Jefferson.
Bentley, Glen Irene,	D. S.,	Oelwein,	Fayette.
Bentley, Mabel,	D. S.,	Oelwein,	Fayette.
Bernick, Fritz,	E. E.,	Buffalo,	Scott.
Bielenberg, C. F.,	C. E.,	Keystone,	Benton.
Billedo, Mariano,	A. H.,	Bangued,	*Abra, P. I.*
Black, E. E.,	Vet.,	Ames,	Story.
Boardman, Lois K.,	Sci.,	Nevada,	Story.
Bodwell, R. E.,	E. E.,	Ida Grove,	Ida.
Booth, J. Francis,	C. E.,	Anita,	Cass.
Boyd, Lee R.,	C. E.,	Ames,	Story.
Broadie, R. W.,	C. E.,	Waverly,	Bremer.
Brugger, Fred,	M. E.,	Lake City,	Calhoun.
Buck, A. M.,	Vet.,	Storm Lake,	Buena Vista.
Burkhart, R. F.,	E. E.,	Hawkeye,	Fayette.
Bush, C. R.,	A. H.,	Washta,	Cherokee.
Campbell, Carlyle,	Dairy,	Ames,	Story.
Campbell, J. R.,	Hort.,	Blackstone,	Taylor.
Campbell, Maude,	G. & D. S.,	Newton,	Jasper.
Campbell, P. C.,	C. E.,	Clear Lake,	Cerro Gordo.
Canady, A. A.,	C. E.,	Gilbert Station,	Story.
Carpenter, B. A.,	E. E.,	State Center,	Marshall.
Carpenter, C. C.,	M. E.,	Marion,	Linn.
Carr, E. B.,	E. E.,	Swaledale,	Cerro Gordo.
Carstensen, A. N.,	Min. E.,	Clinton,	Clinton,
Case, H. M.,	Hort.,	Rockford,	Floyd.
Caswell, Fred,	E. E.,	Coon Rapids,	Carroll.
Chappel, M. E.,	C. E.,	Des Moines,	Polk.
Clayton, D. Walter,	E. E.,	Sibley,	Osceola.
Cockfield, Harry,	M. E.,	Cedar Rapids,	Linn.
Cole, Harold,	Sci.,	Thurman,	Fremont.
Cooker, C. W.,	E. E.,	Blairsburg,	Hamilton.
Cowan, L. F.,	Min. E.,	Iowa Falls,	Hardin.
Craig, Dan,	C. E.,	Ames,	Story.
Crawford, M. O.,	M. E.,	Clarion,	Wright.
Crawford, Nate N.,	Vet.,	Waukon,	Allamakee.

Crouse, R. C.,	E. E.,	Prescott,	Adams.
Cruz, M. M.,	A. H.,	Washington,	*D. C.*
Cunningham, A. H.,	C. E.,	Goldfield,	Wright.
Darling, Eugene,	A. H.,	Fonda,	Pocahontas.
Davis, C. W.,	A. H.,	Allison,	Butler.
Davis, H. K.,	C. E.,	Knoxville,	Marion.
Davis, J. W.,	A. H.,	Avoca,	Pottawattamie.
Day, Georgia,	Sci.,	Keosauqua,	Van Buren.
Dengler, H. D.,	M. E.,	Ames,	Story.
Dixon, Vera,	Sci.,	Sac City,	Sac.
Dorman, B. L.,	C. E.,	N. Providence,	Hardin.
Dragoun, Frank,	C. E.,	Toledo,	Tama.
Dreher, Genevieve,	G. & D. S.,	Scranton,	Greene.
Dyer, Ruth,	Sci.,	Nevada,	Story.
Eby, Valentine V.,	C. E.,	Monticello,	Jones.
Edwards, Oscar,	E. E.,	Dows City,	Crawford.
Eickhoff, Victor,	A. H.,	San Francisco,	*California.*
Ellis, W. V.,	Vet.,	Ames,	Story.
Engle, Elmer G.,	A. H.,	Abilene,	*Kansas.*
Ervin, Verna,	G. & D. S.,	Villisca,	Montgomery.
Ewers, Ruth,	G. & D. S.,	Wyanet,	*Illinois.*
Farmer, Geo. E.,	Sci.,	Sioux Rapids,	Buena Vista.
Farnum, Faye,	Sci.,	Ames,	Story.
Florencourt, F. B.,	E. E.,	Carroll,	Carroll.
Forbes, Grace,	G. & D. S.,	Elgin,	Fayette.
Fox, Harry,	E. E.,	Des Moines,	Polk.
French, Franklin,	G. & D. S.,	Humboldt,	Humboldt.
French, Leslie R.,	C. E.,	Hawarden,	Sioux.
Gamrath, Carl,	Vet.,	Ames,	Story.
Garner, Della,	G. & D. S.,	Ida Grove,	Ida.
Garver, Samuel,	Agron.,	Farmington,	Van Buren.
Gibson, Alice,	Sci.,	Maxwell,	Story.
Gillette, Grace,	G. & D. S.,	Fostoria,	Clay.
Gillette, Millie,	Sci.,	Fostoria,	Clay.
Gilmore, W. J.,	C. E.,	Nevada,	Story.
Goodrich, Floyd,	C. E.,	Packwood,	Jefferson.
Gordon, B. E.,	E. E.,	Hedrick,	Keokuk.
Gray, J. B.,	E. E.,	Morrison,	*Illinois.*
Gray, Roy B.,	E. E.,	Des Moines,	Polk.
Griffith, Bessie,	G. & D. S.,	Ames,	Story.
Guernsey, H. W.,	E. E.,	Clinton,	Clinton.
Hakes, Ralph M.,	E. E.,	Nevada,	Story.
Hale, J. A.,	E. E.,	Tripoli,	Bremer.
Hall, Herman,	M. E.,	Ames,	Story.
Hanna, W. Scott,	A. H.,	Luverne,	Kossuth.
Harris, Carl E.,	C. E.,	Fairfield,	Jefferson.
Haskins, W. A.,	Agron.,	Whitten,	Hardin.
Hauser, B. B.,	C. E.,	Ames,	Story.
Heath, Royce,	C. E.,	Dow City,	Crawford.
Heggin, Albin,	A. H.,	Des Moines,	Polk.
Hewitt, C. M.,	E. E.,	Morning Sun,	Louisa.

Hill, A. F.,	M. E.,	Ames,	Story.
Hitchcock, Rex B.,	M. E.,	Greenfield,	Adair.
Hites, L. V.,	C. E.,	Des Moines,	Polk.
Hollingsworth, A. L.,	Agron.,	Ames,	Story.
Hopkins, Ella,	G. & D. S.,	Nevada,	Story.
Hopkins, Frances,	G. & D. S.,	Nevada,	Story.
Hubbard, Homer C.,	E. E.,	Ida Grove,	Ida.
Huff, Bryant,	C. E.,	Webster City,	Hamilton.
Huffman, O. L.,	C. E.,	Wyoming,	Jones.
Humphrey, M. F.,	E. E.,	Marshalltown,	Marshall.
Hutchinson, Bryce,	Min. E.,	Ames,	Story.
Hutchinson, L. Shelly,	Min. E.,	Iowa Falls,	Hardin.
Hutton, M. L.,	C. E.,	Col. Junction,	Louisa.
Ines, Leon,	C. E.,	Vigan,	*Ilocos, P. I.*
Jepson, M. S.,	A. H.,	Moorhead,	Monona.
Johnson, Fay,	D. S.,	Boone,	Boone.
Jolley, Loren,	A. H.,	Adel,	Dallas.
Jones, F. D.,	C. E.,	Ames,	Story.
Jones, F. O.,	C. E.,	Ames,	Story.
Jones, Gertrude,	D. S.,	Ames,	Story.
Jones, R. H.,	C. E.,	Des Moines,	Polk.
Jongewaard, Neal,	Vet.,	Sioux Center,	Sioux.
Kelley, Earl F.,	C. E.,	Hampton,	Franklin.
Kerr, Francis L.,	A. H.,	Manilla,	Crawford.
Kimball, Florence,	M. E.,	Council Bluffs,	Pottawattamie.
King, J. E.,	E. E.,	Ames,	Story.
Kirkpatrick, K. A.,	Hort.,	South English,	Keokuk.
Klise, C. A.,	E. E.,	Clarinda,	Page.
Knapp, Seaman,	C. E.,	Ames,	Story.
Knowles, Frank,	Min. E.,	Kingsley,	Plymouth.
Kulp, A. I.,	Vet.,	Adel,	Dallas.
KaDel, Orpha,	Sci.,	Ames,	Story.
Lambert, Everett W.,	Min. E.,	Ames,	Story.
Lambert, Guy,	Dairy,	Ames,	Story.
Lan, E. F.,	Vet.,	Buenos Ayres,	*Argentine Rep.*
Lane, W. G.,	E. E.,	Mason City,	Cerro Gordo.
Langwill, W. G.,	Dairy,	Ames,	Story.
Larson, Frank W.,	Vet.,	Marshalltown,	Marshall.
Laurance, Louise,	D. S.,	Cedar Rapids,	Linn.
Law, F. W.,	Vet.,	Keokuk,	Lee.
Leckliter, Walter H.,	C. E.,	Corning,	Adams.
Lidvall, E. R.,	Min. E.,	Dayton,	Webster.
Lister, J. A.,	E. E.,	Sibley,	Osceola.
Lockwood, R. L.,	C. E.,	Osceola,	Clarke.
Loring, D. M.,	C. E.,	Lone Tree,	Johnson.
Luberger, Henry S.,	A. H.,	Cedar Rapids,	Linn.
Luhman, W. A.,	C. E.,	Storm Lake,	Buena Vista.
Luick, Harold F.,	A. H.,	Belmond,	Wright.
McBurney, W. S.,	Sci.,	Ames,	Story.
McCain, G. L.,	E. E.,	Des Moines,	Polk.
McConnell, A. W.,	A. H.,	Cedar Rapids,	Linn.

McCulla, Alma,	G. & D. S.,	St. Ansgar,	Mitchell.
McCullough, T. E.,	C. E.,	Davenport,	Scott.
McElhinney, Ralph,	A. H.,	Dysart,	Tama.
McElyea, H. B.,	E. E.,	Ames,	Story.
Madson, Anna,	G. & D. S.,	Ames,	Story.
Maine, Kenneth,	M. E.,	Des Moines,	Polk.
Manson, Frank R.,	E. E.,	Sibley,	Osceola.
Martin, Chas. W.,	A. H.,	Carroll,	Carroll.
Martin, Helen,	G. & D. S.,	Newton,	Jasper.
Martin, S. D.,	Dairy,	Belmond,	Wright.
Mason, Ralph J.,	A H.,	Iowa Falls,	Hardin.
Maxwell, Mildred,	G. & D. S.,	Ames,	Story.
Merrill, Jay W.,	A. H.,	Ames,	Story.
Miller, Robert B.,	C. E.,	Storm Lake,	Buena Vista.
Mills, George A.,	E. E.,	Waterloo,	Black Hawk.
Milton, I. L.,	E. E.,	Stanwood,	Cedar.
Miner, Ward R.,	A. H.,	Shell Rock,	Butler.
Minert, Jessie,	G. & D. S.,	Ames,	Story.
Mitchell, C. L.,	Dairy,	Ames,	Story.
Naiden, Fred S.,	C. E.,	Woodward,	Dallas.
Nazerene, E. G.,	M. E.,	Dallas Center,	Dallas.
Newlon, Mae,	G. & D. S.,	Ames,	Story.
Newlon, Emily,	G. & D. S.,	Ames,	Story.
Nichols, C. S.,	C. E.,	Ames,	Story.
Okey, C. W.,	C. E.,	Prescott,	Adams.
Orcutt, L. E.,	M. E.,	Council Bluffs,	Pottawattamie.
Orr, Harry,	C. E.,	Waukon,	Allamakee.
Packman, M. E.,	E. E.,	Eagle Grove,	Wright.
Paine, F. D.,	E. E.,	Algona,	Kossuth.
Palmares, Balbino,	Agron.,	Passi,	*Iloilo, P. I.*
Paulson, Fred,	E. E.,	Avoca,	Pottawattamie.
Paulson, Leonard,	Sci.,	Triumph,	*Minnesota.*
Pechstein, J. H.,	M. E.,	Keokuk,	Lee.
Penfield, Charles D.,	Min. E.,	Cedar Rapids,	Linn.
Phillips, E. J.,	C. E.,	Clarence,	Cedar.
Platt, S. G.,	Hort.,	Oelwein,	Fayette.
Powers, George,	C. E.,	Boone,	Boone.
Prather, R. C.,	E. E.,	Griswold,	Cass.
Quaife, Arthur E.,	Agron.,	Ionia,	Chickasaw.
Reppert, P. L.,	E. E.,	Cumberland,	Cass.
Reuling, R. E.,	M. E.,	Muscatine,	Muscatine.
Rhoades, W. J.,	Agron.,	Oakland,	Pottawattamie.
Riedesel, R. C.,	M. E.,	Charter Oak,	Crawford.
Rightmire, J. F.,	C. E.,	Ames,	Story.
Rogers, J. H.,	C. E.,	Council Bluffs,	Pottawattamie.
Rowat, J. F.,	C. E.,	Des Moines,	Polk.
Ruppel, A. C.,	A. H.,	Webster City,	Hamilton.
Russell, H. M.,	A. H.,	Sibley,	Osceola.
Sanders, Gilbert,	C. E.,	Postville,	Allamakee.
Sawhill, W. H.,	Agron.,	Clarinda,	Page.
Shaeffer, L. L.,	Hort.,	Eagle Grove,	Wright.

Schjeldahl, T.,	C. E.,	Highlandville,	Winneshiek.
Schmidt, Will,	C. E.,	Avoca,	Pottawattamie.
Schnaidt, W. F.,	Agron.,	Menno,	*South Dakota.*
Schreiber, Fred,	C. E.,	Chariton,	Lucas.
Schworm, F. G.,	C. E.,	Nevada,	Story.
Scott, W. R.,	A. H.,	Cambridge,	Story.
Sexsmith, Perlee,	E. E.,	West Liberty,	Muscatine.
Shannon, C. W.,	M. E.,	Grant City,	Sac.
Shannon, J. L.,	Vet.,	Barbados	*B. W. I.*
Shoales, J. W.,	A. H.,	Valliant,	*Ind. Territory.*
Smith, Harold C.,	E. E.,	Britt,	Hancock.
Smith, Leslie E.,	Vet.,	Jefferson,	Greene.
Smith, Wilber C.,	Vet.,	Ames,	Story.
Sparks, Mary,	G. & D. S.,	Boone,	Boone.
Stewart, B. J.,	E. E.,	Davenport,	Scott.
Stong, G. C.,	Vet.,	Kilbourne,	Van Buren.
Street, Alfred,	E. E.,	Hesper,	Winneshiek.
Strother, R. R.,	C. E.,	Hubbard,	Hardin.
Summers, J. F.,	A. H.,	Malvern,	Mills.
Symonds, Fred,	E. E.,	Massena,	Cass.
Templeton, R. M.,	C. E.,	Ames,	Story.
Thornton, H. L.,	A. H.,	Aledo,	*Illinois.*
Tracy, F. E.,	A. H.,	Nashua,	Chickasaw.
Troutner, Edith,	Sci.,	Charles City,	Floyd.
Troutner, Ruth,	G. & D. S.,	Charles City,	Floyd.
Underwood, J. R.,	Vet.,	Ames,	Story.
Upton, Louisa,	Sci.,	Fayette,	Fayette.
Van De Waa, H. J.,	Vet.,	Orange City,	Sioux.
Van Duzer, Pearl,	G. & D. S.,	Ontario,	Story.
Van Marter, C. C.,	C. E.,	Humboldt,	Humboldt.
Velander, V. R.,	M. E.,	Stanton,	Montgomery.
Vincent, Frank C.,	E. E.,	Shenandoah,	Page.
Wagner, Chas. W.,	C. E.,	Des Moines,	Polk.
Wagner, H. W.,	E. E.,	Calamus,	Clinton.
Walker, Harry A.,	C. E.,	Clinton,	Clinton.
Wallace, Ruth,	D. S.,	Mendota,	*Illinois.*
Wambeam, Harry,	E. E.,	Ames,	Story.
Ware, S. H.,	C. E.,	Blairsburg,	Hamilton.
Warsaw, Chas. E.,	E. E.,	Riceville,	Mitchell.
Watt, Harry F.,	Sci.,	Hawarden,	Sioux.
Watts, Ruth,	G. & D. S.,	Ames,	Story.
Waugh, E. N.,	A. H.,	Roland,	Story.
Weirick, Ray F.,	C. E.,	Ames,	Story.
Wells, Walter T.,	E. E.,	Marathon,	Buena Vista.
Wiedenmaier, Ethel,	G. & D. S.,	Schaller,	Sac.
Williams, C. M.,	M. E.,	Parkersburg,	Butler.
Wilson, M. L.,	Agron.,	Ames,	Story.
Wilson, Osee,	G. & D. S.,	Seymour,	Wayne.
Winslow, L. M.,	A. H.,	Ames,	Story.
Witmer, Stewart,	C. E.,	Des Moines,	Polk.
Wood, C. R.,	C. E.,	Corwith,	Hancock.

Wood, Rufus C.,	Min. E.,	Denver,	*Colorado.*
Wright, Chas. E.,	C. E.,	Carroll.	Carroll.
Young, C. R.,	A. H.,	Ames,	Story.
Zimmerman, Phoebe,	G. & D. S.,	Ames,	Story.
Zornig, Herman H.,	E. E.,	Newhall,	Benton.

FRESHMAN.

NAME	COURSE	TOWN	COUNTY
Adams, Harold,	C. E.,	Cedar Rapids,	Linn.
Adams, O. E.,	E. E.,	Smithland,	Woodbury.
Akin, Grace M.,	D. S.,	Glidden,	Carroll.
Alexander, C. R.,	C. E.,	Ames,	Story.
Alyea, W. C.,	Vet.,	Waterloo,	Black Hawk.
Andre, Edna,	G. & D. S.,	Schaller,	Sac.
Andrews, Harry L.,	C. E.,	Meriden,	Cherokee.
Andrews, Rollin G.,	Sci.,	Omaha,	*Nebraska.*
Armstrong, Alice A.,	G. & D. S.,	Chicago,	*Illinois.*
Austin, Fred H.,	C. E.,	Webster City,	Hamilton.
Awtry, H. D.,	Vet.,	Laurel,	Marshall.
Bair, Warren W.,	E. E.,	Webster City,	Hamilton.
Baird, E. S.,	E. E.,	Prairie City,	Jasper.
Baker, A. G.,	C. E.,	Eldora,	Hardin.
Baker, Margaret,	D. S.,	Rockwell City,	Calhoun.
Ballantine, F. I.,	M. E.,	Des Moines,	Polk.
Barber, S. A.,	E. E.,	Corwith,	Hancock.
Barndt, H. P.,	C. E.,	Des Moines,	Polk.
Barquist, William,	C. E.,	Des Moines,	Polk.
Barry, Owen T.,	M. E.,	Cedar Rapids,	Linn.
Baughman, L. H.,	M. E.,	Oskaloosa,	Mahaska.
Beatty, Linn,	C. E.,	Keosauqua,	Van Buren.
Bechtle, G. C.,	E. E.,	Le Mars,	Plymouth.
Beckman, Will,	M. E.,	Grundy Center,	Grundy.
Beecher, Milton F.,	M. E.,	Mason City,	Cerro Gordo.
Beiter, Grover,	C. E.,	Carroll,	Carroll.
Benjamin, Leona,	G. & D. S.,	Newton,	Jasper.
Bergman, H. Dale,	Vet.,	Newton,	Jasper.
Berry, Roy C.,	C. E.,	Toledo,	Tama.
Beuck, Henry,	A. H.,	Avoca,	Pottawattamie.
Bittenbender, H. A.,	A. H.,	Osage,	Mitchell.
Black, Clyde,	Hort.,	Dexter,	Dallas.
Black, C. A.,	Vet.,	Colfax,	Jasper.
Black, W. H.,	A. H.,	Ft. Dodge,	Webster.
Bliss, C. F.,	Hort.,	Iowa Falls,	Hardin.
Board, A. R.,	E. E.,	Marcus,	Cherokee.
Boling, A. J.,	M. E.,	Bagley,	Guthrie.
Bolles, Laurence,	C. E.,	Ames,	Story.
Booher, Edith,	D. S.,	Danbury,	Woodbury.
Bowers, Mary L.,	G. & D. S.,	Alton,	Sioux.
Britson, John	C. E.,	Roland,	Story.

Brown, Bessie R.,	G. & D. S.,	Sioux City,	Woodbury.
Brown, Chas. W.,	Vet.,	Dana,	Greene.
Brown, Ira C.,	Vet.,	Shannon City,	Union.
Browne, Herman H.,	M. E.,	Knoxville,	Marion.
Brown, Lola,	D. S.,	Ames,	Story.
Brown, Roy S.,	E. E.,	Cedar Falls,	Black Hawk.
Buchanan, John H.,	Sci.,	Eagle Grove,	Wright.
Buckland, W. W.,	A. H.,	Castalia,	Winneshiek.
Budd, June Etta,	Sci.,	Shellsburg,	Benton.
Buell, W. Elijah,	C. E.,	Lyons,	Clinton.
Bullen, Arthur,	M. E.,	Pueblo,	*Colorado.*
Burger, Arthur,	Agron.,	Van Meter,	Dallas.
Burgeson, J. A.,	E. E.,	Stanton,	Montgomery.
Burkhalter, C. S.,	C. E.,	Rockwell City,	Calhoun.
Busby, Bertha,	G. & D. S.,	Marion,	Linn.
Butler, A. C.,	E. E.,	Radcliffe,	Hardin.
Butler, D. V.,	C. E.,	Nashua,	Chickasaw.
Cable, Emil Y.,	Agron.,	Waterloo,	Black Hawk.
Calonkey, Josephine,	G. & D. S.,	Woodward,	Dallas.
Campbell, George S.,	M. E.,	Newton,	Jasper.
Carlsen, Elise,	G. & D. S.,	St. Ansgar,	Mitchell.
Carson, H. J.,	M. E.,	Council Bluffs,	Pottawattamie.
Chase, F. H.,	E. E.,	Milford,	Dickinson.
Chase, May,	Sci.,	Milford,	Dickinson.
Chase, Orrin,	C. E.,	McIntire,	Mitchell.
Chatterton, Ralph,	E. E.,	Peterson,	Clay.
Clark, Athey,	E. E.,	Mo. Valley,	Harrison.
Clark, Clarissa,	Sci.,	Ames,	Story.
Clark, Perry B.,	M. E.,	Yetter,	Calhoun.
Clark, Sadie,	Sci.,	Ames,	Story.
Cleveland, W. J.,	Vet.,	Havelock,	Pocahontas.
Cline, J. D.,	Vet.,	Ames,	Story.
Clyde, J. J.,	C. E.,	Osage,	Mitchell.
Coleman, R. V.,	A. H.,	Millsboro,	Henry.
Colford, M. L.,	M. E.,	Ft. Dodge,	Webster.
Collins, Dean,	E. E.,	Charles City,	Floyd.
Collins, Floyd,	A. H.,	Boone,	Boone.
Collins, Glen,	A. H.,	Dallas Center,	Dallas.
Conger, Carol,	G. & D. S.,	Adel,	Dallas.
Cool, Claude A.,	C. E.,	Waverly,	Bremer.
Cooney, F. H.,	C. E.,	Coon Rapids,	Carroll.
Copeland, F. B.,	Vet.,	Logan,	Harrison.
Copeland, Fred H.,	A. H.,	Portsmouth,	Shelby.
Corlette, Lyle H.,	M. E.,	Ames,	Story.
Corneliussen, C. W.,	E. E.,	Alta,	Buena Vista.
Cort, Edwin G.,	A. H.,	Ames,	Story.
Cort, J. C.,	Hort.,	Ames,	Story.
Cover, Leo L.,	E. E.,	Dunlap,	Harrison.
Cox, Frank,	A. H.,	Adair,	Adair.
Cox, Irwin W.,	C. E.,	Ames,	Story.
Cox, L. W.,	C. E.,	Ames,	Story.

Cramer, W. H.,	M. E.,	Reasnor,	Jasper.
Crawford, A. R.,	E. E.,	Cherokee,	Cherokee.
Crewdson, Archie,	Vet.,	Woodbine,	Harrison.
Crowly, Paul W.,	A. H.,	Galva,	Ida.
Cruttenden, A. H.,	E. E.,	Des Moines,	Polk.
Cushing, W. T.,	A. H.,	Ottumwa,	Wapello.
Dalva, Edward,	C. E.,	Jewell,	Hamilton.
Daniels, R. R.,	E. E.,	Waterloo,	Black Hawk.
Dauchy, Geo. W.,	E. E.,	Waterloo,	Black Hawk.
Davenport, Will,	A. H.,	Odebolt,	Sac.
Davidson, R. J.,	A. H.,	Brooklyn,	Poweshiek.
Davis, Grace,	G. & D. S.,	Scranton,	Greene.
Davis, Ralph E.,	M. E.,	New Virginia,	Warren.
Day, Ed. L.,	A. H.,	Des Moines,	Polk.
Deakin, M. R.,	C. E.,	Prairie City,	Jasper.
Deal, Maude,	G. & D. S.,	Ames,	Story.
Dewey, A. O.,	A. H.,	Murray,	Clarke.
Dickinson, H. J.,	E. E.,	Osage,	Mitchell.
Dillon, Will J.,	C. E.,	Red Oak,	Montgomery.
Dingeman, R. W.,	E. E.,	Ottumwa,	Wapello.
Doaden, Henry,	M. E.,	George,	Lyon.
Dockstader, Irvie,	E. E.,	Des Moines,	Polk.
Donovan, J. J.,	Vet.,	Zwingle,	Jackson.
Dorsey, Sherman H.,	E. E.,	Greenfield,	Adair.
Drury, W. F.,	Min. E.,	Dexter,	Dallas.
Du Bois, E. B.,	A. H.,	Ames,	Story.
Dunham, Clark,	M. E.,	Dunlap,	Harrison.
Eby, Charles,	C. E.,	Waterloo,	Black Hawk.
Edmonds, Walter E.,	M. E.,	Sioux City,	Woodbury.
Egan, Chas. B.,	C. E.,	Atlantic,	Cass.
Eslick, Parker,	Agron.,	Webster City,	Hamilton.
Estel, Edward,	Hort.,	Marshalltown,	Marshall.
Evans, J. P.,	C. E.,	Marcus,	Cherokee.
Everett, Edna,	G. & D. S.,	Spirit Lake,	Dickinson.
Evers, Harry C.,	Vet.,	Iowa Falls,	Hardin.
Eves, Earl,	E. E.,	West Liberty,	Muscatine.
Ewen, Earl,	A. H.,	Callender,	Webster.
Falcon, W. C.,	A. H.,	Mt. Vernon,	Linn.
Farnsworth, F. B.,	M. E.,	Galva,	Ida.
Ferrin, E. F.,	A. H.,	Cherokee,	Cherokee.
Fleenor, A. L.,	Vet.,	Garner,	Hancock.
Folker, A. D.,	A. H.,	Mt. Sterling,	*Illinois.*
Ford, J. Clyde,	C. E.,	Des Moines,	Polk.
Forman, L. W.,	Agron.,	Ames,	Story.
Forrest, A. C.,	Sc. & Agri.,	Garner,	Hancock.
Fowler, Emery S.,	C. E.,	Radcliffe,	Hardin.
France, B. L.,	A. H.,	Moville,	Woodbury.
French, C. W.,	A. H.,	Hawarden,	Sioux.
Frevert, G.,	Agron.,	Odebolt,	Sac.
Fultz, F. G.,	Vet.,	Ames,	Story.
Furman, Addie,	G. & D. S.,	Webster City,	Hamilton.

Garlock, L. E.,	C. E.,	Plover,	Pocahontas.
Gibson, Orral,	G. & D. S.,	Danbury,	Woodbury.
Gilbert, Guy,	Vet.,	Gilbert,	Story.
Gilbert, Roy,	Vet.,	Gilbert,	Story.
Gilchrist, Margaret,	G. & D. S.,	Ames,	Story.
Gilmore, Wayne,	M. E.,	Waterloo.	Black Hawk.
Glidden, Edith,	G. & D. S.,	Ames,	Story.
Glover, J. C.,	M. E.,	Sloan,	Woodbury.
Gockley, W. L.,	E. E.,	Whittemore,	Kossuth.
Goodrich, Ira E.,	C. E.,	Waterloo,	Black Hawk.
Gordon, W. C.,	E. E.,	Montezuma,	Poweshiek.
Gowdey, Louis,	Hort.,	Dexter,	Dallas.
Graham, C. H.,	A. H.,	Verona,	*Pennsylvania.*
Graham, Marshall,	Min. E.,	Ames,	Story.
Graham, Robert,	Vet.,	Ames,	Story.
Granger. P. R.,	A. H.,	Essex.	Page.
Gray, W. G.,	Vet.,	Ames,	Story.
Greenwald, Karl C.,	M. E.,	New Hampton,	Chickasaw.
Greer, J. R.,	C. E.,	Marion,	Linn.
Greer, Murl,	G. & D. S.,	Ames,	Story.
Gregory, C. V.,	A. H.,	Burchinal,	Cerro Gordo.
Gribben, William,	C. E.,	Minburn,	Dallas.
Griffin, Harvey P.,	A. H.,	Marshalltown,	Marshall.
Griffis, F. Arthur,	E. E.,	Morning Sun,	Louisa.
Griffith, W. A.,	C. E.,	West Point,	Lee.
Groves, Frank W.,	E. E.,	Des Moines,	Polk.
Hallowell, Inez,	D. S.,	Dow City,	Crawford.
Halverson, Hilman A.,	C. E.,	Kingsley,	Plymouth.
Hamilton, J. W.,	Vet.,	Hawarden,	Sioux.
Hammitt, Charles,	E. E.,	Toledo,	Tama.
Hanssen, D. W.,	E. E.,	Carroll,	Carroll.
Hanson, R. E.,	Vet.,	Forest City,	Winnebago.
Harding, P. B.,	A. H.,	Sioux City,	Woodbury.
Harp, Paul W.,	A. H.,	Prairie City,	Jasper.
Harvey, Guy,	A. H.,	Ames,	Story.
Havner, Harry,	A. H.,	Corydon,	Wayne.
Haw, E. P.,	C. E.,	Ellsworth,	*Wisconsin.*
Haw, F. B.,	A. H..	Ottumwa,	Wapello.
Hazen, Harvey,	A. H.,	Denmark,	Lee.
Heaton, R. D.,	Min. E.,	Perry,	Dallas.
Heiple, Eldredge,	C. E.,	Waterloo,	Black Hawk.
Hemsworth, O. V.,	E. E.,	Cedar Falls,	Black Hawk.
Hendricks, C. W.,	Agron.,	Muscatine,	Muscatine.
Herbert, Howard,	Hort.,	Atlantic,	Cass.
Herm, O. G.,	C. E.,	Searville,	Winnebago.
Hicks, Geo. R.,	C. E.,	Sioux City,	Woodbury.
Hicks, Ralph R.,	M. E.	Des Moines,	Polk.
Hill, Howard T.,	Sci.,	Ames,	Story.
Hipschen, P. J.,	Vet.,	Bellevue,	Jackson.
Horton, Guy,	Min. E..	Marion,	Linn.
Horton, J. Omro,	C. E.,	Nashua,	Chickasaw.

Householder, H. W.,	A. H.,	Chariton,	Lucas.
Howd, Otto,	C. E.,	Webster City,	Hamilton.
Howes, Ray L.,	E. E.,	Lake City,	Calhoun.
Hoyt, Edward L.,	M. E.,	Omaha,	*Nebraska.*
Hoyt, S. H.,	C. E.,	Mason City,	Cerro Gordo.
Hugg, John,	M. E.	Polk,	Polk.
Hukill, E. C.,	A. H.,	Des Moines,	Polk.
Hultman, Arthur I.,	E. E.,	Sioux City,	Woodbury.
Hyland, J. L.,	C. E.,	Osceola,	Clark.
Immel, Robert,	Sc. & Agri.,	Columbus,	*Ohio.*
Ineson, M. W.,	C. E.,	Dallas Center,	Dallas.
Jackley, J. G.,	Vet.,	Coon Rapids,	Carroll.
Jeanson, R. E.,	A. H.,	Des Moines,	Polk.
Jeffries, G. C.,	Vet.,	Mitchellville,	Polk.
Johnson, E. E.,	E. E.,	Williams,	Hamilton.
Johnson, F. B.,	E. E.,	Waukon,	Allamakee.
Johnson, G. B.,	E. E.,	Decorah,	Winneshiek.
Johnson, O. E.,	E. E.,	Ottumwa,	Wapello.
Johnson, Roy C.,	E. E.,	Hawarden,	Sioux.
Johnson, V. P.,	Sc. & Agri.,	Sioux City,	Woodbury.
Johnston, W. D.,	C. E.,	Waterloo,	Black Hawk.
Joiner, Melvin W.,	A. H.,	Maquoketa,	Jackson.
Jones, Harry,	Vet.,	Williamsburg,	Iowa.
Jones, Helen M.,	G. & D. S.,	Allison,	Butler.
Jones, H. W.,	C. E.,	Ames,	Story.
Jones, W. R.,	Vet.,	Marshalltown,	Marshall.
Kalb, H. W.,	E. E.,	Denison,	Crawford.
Kaufman, Frank,	C. E..	Hampton,	Franklin.
Keeney, W. E.,	C. E.,	Jefferson,	Greene.
Keipp, Harry M.,	C. E.,	Colfax,	Jasper.
Keir, L.,	Vet.,	Sac City,	Sac.
Kelsey, C. J.,	Agron.,	Iowa Falls,	Hardin.
Kemler, C. H.,	E. E.,	Dubuque,	Dubuque.
Kendall, Rex,	M. E.,	Burlington,	Des Moines.
King, Fenner E.,	Sci.,	Ames,	Story.
King, H. W.,	E. E.,	Waterloo,	Black Hawk.
Kingman, Floyd,	Agron.,	Des Moines,	Polk.
Kirkpatrick, J. G.,	E. E.,	Waterloo,	Black Hawk.
Kirstein, J. E.,	A. H.,	Clarion,	Wright.
Knauer, W. G.,	M. E.,	Des Moines,	Polk.
Knoche, A.,	E. E.,	Cedar Falls,	Black Hawk.
Knox, A. B.,	M. E.,	Cherokee,	Cherokee.
Knudson, Susie,	Sci.,	Nevada,	Story.
Kraft, John,	C. E.,	Des Moines,	Polk.
Lake, C. C.,	A. H.,	Gilbert Station,	Story.
Lambert, Millard,	A. H.,	Colusa,	*Illinois.*
Landes, Gene,	M. E.,	Keosauqua,	Van Buren.
Langseth, Ruth,	G. & D. S.,	Dixon,	Scott.
Laughlin, C. J.,	C. E.,	Sloan,	Woodbury.
Laughlin, F. L.,	A. H.,	Osage,	Mitchell.
Leffler, J. M.,	A. H.,	Stockport,	Van Buren.

Legenhausen, A. H.,	Vet.,	Fenton,	Kossuth.
Leibrock, L. L.,	Min. E.,	Elkader,	Clayton.
Lemon, L. C.,	C. E.,	Spirit Lake,	Dickinson.
Leonard, A. C.,	E. E.,	Elliott,	Montgomery.
Letson, Helen,	Sci.,	Des Moines,	Polk.
Littlejohn, Roy C.,	E. E.,	Independence,	Buchanan.
Lockwood, H. A.,	A. H.,	Central City,	Linn.
Longnecker, A. C.,	C. E.,	Shelby,	Shelby.
Lorenzo, Tomas,	E. E.,	San Fernando,	*Parpanga, P. I.*
Lund, M. C.,	A. H.,	Soughton,	*Wisconsin.*
Lungren, A. F.,	Sci.,	Gowrie,	Webster.
Lusk, R. E.,	C. E.,	Eagle Grove,	Wright.
McCall, F. E.,	Hort.,	Ames,	Story.
McCall, Thomas,	Hort.,	Ames,	Story.
McCartney, R. E.,	E. E.,	Cedar Rapids,	Linn.
McCord, Bradley,	M. E.,	Harlan,	Shelby.
McCord, R. E.,	C. E.,	Hampton,	Franklin.
McCormick, A. G.,	A. H.,	Mt. Pleasant,	Henry.
McCormick, Robert,	C. E.,	Des Moines,	Polk.
McCulloch, B. E.,	Vet.,	Donellson,	Lee.
McCullum, Lee,	E. E.,	Iowa Falls,	Hardin.
McDonald, C. M.,	C. E.,	Montezuma,	Poweshiek.
McDonald, Murl,	Agron.,	Ames,	Story.
McElroy, David,	M. E.,	Keokuk,	Lee.
McFarland, F. M.,	E. E.,	Harlan,	Shelby.
McFarland, J. D.,	C. E.,	Des Moines,	Polk.
McKeen, Jesse,	Sci.,	Tama,	Tama.
McKibben, Guy,	M. E.,	Storm Lake,	Buena Vista.
McKim, F. A.,	Vet.,	Ames,	Story.
Mack, G. H.,	C. E.,	Dows,	Wright.
Macklin, Theodore,	A. H.,	Ames,	Story.
Madson, Nina,	G. & D. S.,	Ames,	Story.
Mallette, F. G.,	C. E.,	Garden Grove,	Decatur.
Mann, Floyd D.,	Agron.,	Castana,	Monona.
Manning, T. W.,	C. E.,	Ames,	Story.
Mannion, M. C.,	Vet.,	Hazleton,	Buchanan.
Mantor, H. O.,	Vet.,	Nephi,	*Utah.*
Marshall, Emory,	Min. E.,	Des Moines,	Polk.
Marriage, Paul,	M. E.,	Des Moines,	Polk.
Martin, C. E.,	C. E.,	Des Moines,	Polk.
Mason, J. W.,	E. E.,	Adair,	Adair.
Mason, W. T.,	A. H.,	Iowa Falls,	Hardin.
Matter, Otto,	E. E.,	Polk,	Polk.
Maynard, R. M.,	M. E.,	Cherokee,	Cherokee.
Maytag, L. P.,	M. E.,	Newton,	Jasper.
Meacham, H. A.,	A. H.,	Richland,	Keokuk.
Mellor, Lucretia,	G. & D. S.,	Ames,	Story.
Menary, A. R.,	Vet.,	Cedar Rapids,	Linn.
Mercer, J. M.,	E. E.,	Greenfield,	Adair.
Merten, C. F.,	C. E.,	Garner,	Hancock.
Metcalf, J. T.,	A. H.,	Paullina,	O'Brien.

Meyer, J. E.,	C. E.,	Marcus,	Cherokee.
Michaelson, W. M.,	C. E.,	Gilbert,	Story.
Millen, R. W.,	C. E.,	Earlville,	Delaware.
Mills, Vera,	G. & D. S.,	Jefferson,	Greene.
Mirick, Maude,	Sci.,	Monticello,	Jones.
Mondonedo, Mariano,	A. H.,	Gamu,	*Isabela, P. I.*
Moorehead, F. F.,	C. E.,	Ida Grove,	Ida.
Morris, Celia,	G. & D. S.,	Corning,	Adair.
Morris, E. A.,	E. E.,	Keokuk,	Lee.
Morrison, G. W.,	M. E.,	Des Moines,	Polk.
Moss, V. W.,	E. E.,	Albia,	Monroe.
Myerly, H. B.,	E. E.,	Des Moines,	Polk.
Myers, B. S.,	C. E.,	Dexter,	Dallas.
Myers, L. C.,	A. H.,	Shell Rock,	Butler.
Nelson, G. M.,	A. H.,	Goldfield,	Wright.
Nelson, L. A.,	A. H.,	Harlan,	Shelby.
Nicolay, J. J.,	M. E.,	Postville,	Allamakee.
Nicholl, F. I.,	A. H.,	Ida Grove,	Ida.
Noble, J. A.,	E. E.,	Ames,	Story.
Noggle, C. A.,	Vet.,	Marshalltown,	Marshall.
Nygren, H. J.,	Vet.,	Lake City,	Calhoun.
O'Donnell, M. W.,	A. H.,	Ames,	Story.
O'Leary, J. E.,	C. E.,	Mason City,	Cerro Gordo.
Oliver, Florentine,	M. E.,	Mueva,	*Caceres, P. I.*
Olson, Athyl,	D. S.,	Sac City,	Sac.
Orland, Hilda,	G. & D. S.,	Ames,	Story.
Owens, J. M.,	C. E.,	Morning Sun,	Louisa.
Paddock, Clara L.,	G. & D. S.,	Grundy Center,	Grundy,
Palmer, W. H.,	C. E.,	Des Moines,	Polk.
Pammel, Edna,	Sci.,	Ames,	Story.
Parke, L. S.,	Sci.,	Paullina,	O'Brien.
Parker, A. K.,	Sci.,	Auburn,	Sac.
Parsons, Amy R.,	D. S.,	Keokuk,	Lee.
Patterson, G. W.,	A. H.,	Burt,	Kossuth.
Person, L. C.,	A. H.,	Sibley,	Osceola.
Peters, Claude H.,	E. E.,	Grinnell,	Poweshiek.
Peterson, John B.,	A. H.,	Morrison,	*Illinois.*
Pickworth, E. A.,	C. E.,	Anamosa,	Jones.
Pinney, F. W.,	Min. E.,	Humboldt,	Humboldt.
Pitts, Eva,	G. & D. S.,	Alton,	Sioux.
Platts, Charles,	A. H.,	Lake Mills,	Winnebago.
Pooley, Roy,	C. E.,	Greene,	Butler.
Prescott, E. C.,	E. E.,	Sioux City,	Woodbury.
Prouty, E. D.,	M. E.,	Keokuk,	Lee.
Putnam, H. D.,	C. E.,	Greene,	Butler.
Quick, E. N.,	A. H.,	Des Moines,	Polk.
Randau, F. A.,	A. H.,	Ames,	Story.
Ranninger, Anna,	Sci.,	Denison,	Crawford.
Ray, Frank E.,	Hort.,	Des Moines,	Polk.
Read, G. D.,	Min. E.,	Clarence,	Cedar.
Reeves, A. B.,	C. E.,	Sibley,	Osceola.

Reynolds, Carl,	C. E.,	Harlan,	Shelby.
Reynolds, W. E.,	C. E.,	Storm Lake,	Buena Vista.
Rhine, E. B.,	C. E.,	Eldora,	Hardin.
Rhodes, Dayt F.,	C. E.,	Monticello,	Jones.
Rich, G. C.,	M. E.,	Cedar Rapids,	Linn.
Roberts, Coral,	G. & D. S.,	Marathon,	Buena Vista.
Robertson, J. D.,	M. E.,	Ottumwa,	Wapello.
Robinson, F. A.,	Min. E.,	Colfax,	Jasper.
Robinson, Mona,	G. & D. S.,	Belle Plaine,	Benton.
Rohrer, D. E.,	C. E.,	Joplin,	*Missouri.*
Rolph, J. M.,	E. E.,	Little Sioux,	Harrison.
Rosengren, M. W.,	Vet.,	Marshalltown,	Marshall.
Ross, W. E.,	A. H.,	Lamont,	Buchanan.
Rowat, Dave,	A. H.,	Des Moines,	Polk.
Rudd, Ross,	E. E.,	Dow City,	Crawford.
Russell, Leta L.,	G. & D. S.,	Humboldt,	Humboldt.
Rutledge, I. C.,	A. H.,	Ft. Dodge,	Webster.
Sanders, J. S.,	Vet.,	Ames,	Story.
Sauerberg, C. G.,	M. E.,	Mason City,	Cerro Gordo.
Saul, W. I.,	E. E.,	Carroll,	Carroll.
Scarbrough, Lee J.,	C. E.,	Corning,	Adams,
Schader, Fred M.,	C. E.,	Preston,	Jackson.
Schemann, Carl H.,	C. E.,	Des Moines,	Polk.
Schenck, E. E.,	C. E.,	Waterloo,	Black Hawk.
Schlick, W. J.,	C. E.,	Indianola,	Warren.
Scholten, Henry,	C. E.,	Alton,	Sioux.
Schroeder, E. F.,	E. E.,	Davenport,	Scott.
Scothorn, R. A.,	Vet.,	Oelwein,	Fayette.
Scriver, Stewart A.,	A. H.,	Denison,	Crawford.
Seeberger, K. D.,	M. E.,	Newton,	Jasper.
Semmons, Mildred,	G. & D. S.,	Ames,	Story.
Sharp, E. P.,	C. E.,	Dow City,	Crawford.
Shorts, F. T.,	C. E.,	Des Moines,	Polk.
Sherwood, Ross,	A. H.,	Shabbona,	*Illinois.*
Shields, E. F.,	Min. E.,	Des Moines,	Polk.
Shiffen, James A.,	M. E.,	Tipton,	Cedar.
Shumway, C. R.,	A. H.,	State Center,	Marshall.
Simcoke, Helen,	G. & D. S.,	Adel,	Dallas.
Skegg, Ella C.,	D. S.,	Marshalltown,	Marshall.
Sloan, Luther,	E. E.,	Sioux City,	Woodbury.
Smith, Cecile H.,	G. & D. S.,	Ames,	Story.
Smith, C. W.,	C. E.,	Ames,	Story.
Smith, Dan M.,	Vet.,	Ames,	Story.
Smith, Mary,	Sci.,	Rolfe,	Pocahontas.
Smith, Roy E.,	Agron.,	Canton,	*South Dakota.*
Smith, Ruth,	C. E.,	Keokuk,	Lee.
Smith, Roy R.,	C. E.,	Boone,	Boone.
Smith, Walter A.,	A. H.,	Fridley,	*Montana.*
Sonner, Gussie,	Sci.,	Ollie,	Keokuk.
Soth, A. A.,	M. E.,	Toledo,	Tama.
Spencer, R. L.,	M. E.,	Des Moines,	Polk.
Sprague, Arthur,	Vet.,	Chadron,	*Nebraska.*

Springer, Spencer,	E. E.,	Eddyville,	Wapello.
Stafford, H. A.,	A. H.,	Blairsburg,	Hamilton.
Starner, A. V.,	A. H.,	Odebolt,	Sac.
Steigerwalt, Sam,	C. E.,	Carroll,	Carroll.
Stevens, John E.,	Min. E.,	Boone,	Boone.
Stewart, Dale B.,	Vet.,	Maynard,	Fayette.
Stewart, Everett L.,	Agron.,	Washington,	Washington.
Stoddard, I. W.,	C. E.,	Muscatine,	Muscatine.
Stoery, Anton,	C. E.,	Dows,	Wright.
Storms, Laura B.,	G. & D. S.,	Ames,	Story.
Stout, Charles R.,	A. H.,	Stout,	Grundy.
Strickler, E. F.,	C. E.,	Centerville,	Appanoose.
Strickler, P. B.,	A. H.,	Centerville,	Appanoose.
Strong, H. L.,	M. E.,	Humboldt,	Humboldt.
Summerville, W. E.,	A. H.,	Manning,	Carroll.
Suter, Ike,	A. H.,	Monticello,	Jones.
Swatosh, J. L.,	E. E.,	Belle Plaine,	Benton.
Taylor, H. H.,	E. E.,	Oskaloosa,	Mahaska.
Taylor, I. I.,	C. E.,	Storm Lake,	Buena Vista.
Taylor, Nora M.,	G. & D. S.,	Sibley,	Osceola.
Teget, H. A.,	C. E.,	Webster City,	Hamilton.
Tellier, G. H.,	Dairy,	Humboldt,	Humboldt.
Thomas, Helen M.,	G. & D. S.,	Charles City,	Floyd.
Thomas, Roy,	Min. E.,	Buxton,	Monroe.
Thompson, W. K.,	C. E.,	Salt Lake City,	*Utah.*
Thurman, A. G.,	A. H.,	Blanchard,	Page.
Toms, Robert,	E. E.,	Marion,	Linn.
Tone, E. J.,	Sci.,	Gilman,	Marshall.
Trawverm, H. E.,	Vet.,	Winterset,	Madison.
Trullinger, Samuel,	C. E.,	Farragut,	Fremont.
Trullinger, Robert,	C. E.,	Farragut,	Fremont.
Turner, M. W.,	C. E.,	Atlantic,	Cass.
Tusant, Edgar,	C. E.,	Des Moines,	Polk.
Tyler, H. E.,	M. E.,	Villisca,	Montgomery.
Tyson, H. B.,	Min. E.,	Emmetsburg,	Palo Alto.
Van De Steeg, G. J.,	E. E.,	Orange City,	Sioux.
Van Fossen, R. E.,	Agron.,	Adel,	Dallas.
Van Meter, M. E.,	E. E.,	Manilla,	Crawford.
Van Ness, H. G.,	Sci.,	Neola,	Pottawattamie.
Wakefield, Helen,	D. S.,	Sioux City,	Woodbury.
Walker, Boyd A.,	C. E.,	Des Moines,	Polk.
Wallace, H. A.,	Agron.,	Des Moines,	Polk.
Walter, R. E.,	E. E.,	Harlan,	Shelby.
Waltmire, Violet,	Sci.,	Ames,	Story.
Watts, Helen L.,	G. & D. S.,	Ames,	Story.
Wentworth, W. A.,	Agron.,	State Center,	Marshall.
West, Chase,	E. E.,	Des Moines,	Polk.
Wettengel, Frank,	E. E.,	Dunlap,	Harrison.
Whalen, William,	E. E.,	Boone,	Boone.
Wheeler, Lee,	M. E.,	Des Moines,	Polk.
White, Homer,	M. E.,	Keokuk,	Lee.
White, Louis L.,	C. E.,	Volga City,	Clayton.

White, Myrle,	G. & D. S.,	Ames,	Story.
White, S. K. Jr.,	Hort.,	Hartford,	*Connecticut.*
Wiggins, Jay,	C. E.,	Coopee,	Greene.
Wilcox, Herbert F.,	Hort.,	Marshalltown,	Marshall.
Willett, Thomas K.,	Min. E.,	Decorah,	Winneshiek.
Wilson, Halle,	G. & D. S.,	Cincinnati,	Appanoose.
Wilson, Ralph E.,	E. E.,	Stanwood,	Cedar.
Witter, G. F.,	M. E.,	Des Moines,	Polk.
Wolcott, H. A.,	E. E.,	Belmond,	Wright.
Wood, A. B.,	C. E.,	Fonda,	Pocahontas.
Wood, J. C.,	A. H.,	Traer,	Tama.
Wood, J. R.,	M. E.,	Ames,	Story.
Wood, Lucien A.,	E. E.,	Fonda,	Pocahontas.
Wormley, Don S.,	E. E.,	Newton,	Jasper.
Wright, C. F.,	A. H.,	Manteno,	*Illinois.*
Wyse, Lester C.,	E. E.,	Wayland,	Henry.
Yeomans, Homer,	M. E.,	Ames,	Story.
Yocum, J. R.,	E. E.,	Des Moines,	Polk.
Yoder, Dan E.,	A. H.,	Wellman,	Washington.
Young, C. H.,	C. E.,	Muscatine,	Muscatine.
Young, G. H.,	Hort.,	Des Moines,	Polk.
Zartman, R. C.,	C. E.,	Perry,	Dallas.
Zimmerman, A. G.,	Agron.,	Washta,	Cherokee.

ACADEMIC.

NAME	COURSE	TOWN.	COUNTY.
Ageton, Bert,	E. E.,	Ames,	Story.
Ageton, Roy,	Min. E.,	Ames,	Story.
Ahlff, Albert,	M. E.,	Grand Mound,	Clinton.
Allen, H. J.,	E. E.,	Creston,	Union.
Amesbury, Ernest,	C. E.,	Springfield,	*South Dakota.*
Anderson, Merle,	M. E.,	Jewell Junct.,	Hamilton.
Anwyl, Neil,	A. H.,	Columbus City,	Louisa.
Arentson, James,	M. E.,	Council Bluffs,	Pottawattamie.
Athanassiou, Basil,	Agri.,	Belgrade,	*Russia.*
Axtel, C. E.,	E. E.,	Ames,	Story.
Bailleres, Josi,	M. E.,	Ames,	Story.
Barhite, B. B.,	C. E.,	Ames,	Story.
Barner, Samuel,	Agri.,	Coon Rapids,	Carroll.
Barr, L. H.,	C. E.,	Strawberry Pt.,	Clayton.
Bashford, L. G.,	C. E.,	Clarksville,	Butler.
Bauer, Frank G.,	A. H.,	Millersburg,	Iowa.
Baumbach, John,	C. E.,	Pleasant, Vall.,	Scott.
Baxter, Sam,	A. H.,	Buckingham,	Tama.
Beach, C. S.,	Sc. & Agri.,	Lenox,	Taylor.
Beattie, W. S.,	C. E.,	Welton,	Clinton.
Bennett, H. M.,	E. E.,	Webster City,	Hamilton.
Beverly, A. L.,	Sci.,	Ames,	Story.
Beilenbury, Theodore,	M. E.,	Catford,	*England.*

Bigelow, Herbert,	E. E.,	Waukon,	Allamakee.
Blessin, Frederick,	E. E.,	Eldorado,	Fayette.
Blumenschein, Ed.,	C. E.,	Rhodes,	Marshall.
Booher, R. P.,	E. E.,	Ute,	Monona.
Booth, C. Lester,	C. E.,	Bonaparte,	Van Buren.
Bossert, H. B.,	C. E.,	Primghar,	O'Brien.
Bowen, T. J.,	C. E.,	Nashua,	Chickasaw.
Bowman, C. J.,	A. H.,	Marshalltown,	Marshall.
Boys, Will L.,	A. H.,	Creston,	Union.
Bradley, F. E.,	M. E.,	Baldwin,	Jackson.
Brockman, C. W.,	E. E.,	Ottumwa,	Wapello.
Brooks, E. C.,	E. E.,	Wiota,	Cass.
Brotchie, Ralph,	C. E.,	Atalissa,	Muscatine.
Brown, F. C.,	A. H.,	State Center,	Marshall.
Brown, J. D.,	E. E.,	Sioux City,	Woodbury.
Brown, J. L.,	C. E.,	N. Providence,	Hardin.
Brumfield, B. O.,	E. E.,	Waukee,	Dallas.
Brush, George,	E. E.,	Traer,	Tama.
Buck, David,	Agron.,	Rhodes,	Marshall.
Buffington, Clyde,	A. H.,	Glenwood,	Mills.
Burch, P. A.,	E. E.,	Olin,	Jones,
Burket, Leroy K.,	E. E.,	Hawarden,	Sioux.
Burnett, L. E.,	A. H.,	Galesburg,	*Illinois.*
Burr, H. B.,	M. E.,	Waverly,	Bremer.
Burright, J. B.,	C. E.,	Gravity,	Taylor.
Caldwell, H. V.,	Agron.,	Ames,	Story.
Calonkey, Olive,	G. & D. S.,	Woodward,	Dallas,
Cameron, Lucetta,	G. & D. S.,	Alta,	Buena Vista.
Campbell, Clarence,	E. E.,	Farragut,	Fremont.
Campbell, Gladys E.,	G. & D. S.,	Gilmore City,	Pocahontas.
Capper, Charles,	C. E.,	Woodward,	Dallas.
Cedargreen, Minnie,	Sci.,	Boone,	Boone.
Chamberlain, A. L.,	E. E.,	Des Moines,	Polk.
Cheney, Harold,	A. H.,	Emerson,	Mills.
Chipman, J. M.,	M. E.,	Peoria,	*Illinois.*
Cole, Will H.,	E. E.,	Williams,	Hamilton.
Coleman, C. F.,	A. H.,	Wayne,	*Illinois.*
Conoway, G. C.,	Sci.,	Moville,	Woodbury.
Conner, J. H.,	C. E.,	Centerville,	Appanoose.
Cooley, Fred,	Agri.,	Osceola,	Clarke.
Coombs, Paul F.,	E. E.,	Keokuk,	Lee.
Coppersmith, R. L.,	A. H.,	Newton,	Jasper.
Cottrill, Frank,	C. E.,	Ames,	Story.
Cottrill, Charles,	C. E.,	Ames,	Story.
Cowan, H. C.,	Min. E.,	Eagle Grove,	Wright.
Cox, Clive L.,	C. E.,	Des Moines,	Polk.
Craig, Carson,	C. E.,	Moulton,	Appanoose.
Crandon, A. B.,	A. H.,	Gilman,	Marshall.
Creel, Edward,	Agron.,	Chihauhau,	*Mexico.*
Creel, Salvador,	C. E.,	Chihauhau,	*Mexico.*
Dahlby, I. E.,	A. H.,	Joyce,	Worth.

Davidson, E. L.,	A. H.,	Brooklyn,	Poweshiek.
Davis, R. H.,	A. H.,	Galva,	Ida.
Deacon, E. L.,	C. E.,	Everly,	Clay.
Dean, Fred L.,	E. E.,	Springville,	Linn.
Dewey, W. A.,	C. E.,	Milford,	Dickinson.
Ditsworth, Robert C.,	Sci.,	Bancroft.	Kossuth.
Doggett, A. E.,	A. H.,	Ames.	Story.
Dow, L. E.,	E. E.,	Klemme,	Hancock.
Durell, Bertie,	A. H.,	Ames,	Story.
Emerson, J. G.,	C. E.,	Burchinal,	Cerro Gordo.
Engberg, Joseph A.,	C. E.,	Kiron,	Crawford.
Evans, E. L.,	M. E.,	Linn Grove,	Buena Vista.
Everts, C. A.,	A. H.,	Wayland,	Henry.
Eyler, G. E.,	M. E.,	McCallsburg,	Story.
Easterly, F. W.,	E. E.,	Olin,	Jones.
Fagan, H. J.,	C. E.,	Mt. Auburn,	Benton.
Farnsworth, E. P.,	E. E.,	Avoca,	Pottawattamie.
Fenton, F. A.,	C. E.,	Waterloo,	Black Hawk.
Fintel, A. R.,	M. E.,	Ames,	Story.
Fishel, H. B.,	C. E.,	Dow City,	Crawford.
Fobes, R. G.,	M. E.,	Marcus,	Cherokee.
Foster, C. A.,	C. E.,	Ames,	Story.
Foster, T. W.,	E. E.,	Ames,	Story.
Freed, W. J.,	Sci. & Agri.,	Boone,	Boone.
Freeman, F. G.,	C. E.,	Winfield,	Henry.
Fuchs, Iva,	G. & D. S.,	Wall Lake,	Sac.
Furry, L. F.,	E. E.,	Alden,	Hardin.
Garcia, Ignacia,	Agron.,	Leon,	*Mexico.*
Garton, H. L.,	Agron.,	Humeston,	Wayne.
Gibson, Estellene,	Sci.,	Maxwell,	Story.
Gibson, F. W.,	E. E.,	Terrill,	Dickinson.
Gilchrist, J. H.,	C. E.,	Ames,	Story.
Gilmore, C. B.,	E. E.,	Ames,	Story.
Good, H. F.,	E. E.,	Newkirk,	*Oklahoma.*
Goodrich, A. C.,	C. E.,	Keokuk,	Lee.
Gratoit, Flint,	M. E.,	Shullsburg,	*Wisconsin.*
Griffith, Hattie,	Sci.,	Estherville,	Emmet.
Hahn, Edward,	E. E.,	Whittemore,	Kossuth.
Hahn, Hugo,	M. E.,	Dyersville,	Dubuque.
Hall, Allen,	E. E.,	Des Moines,	Polk.
Hall, R. W.,	E. E.,	Van Wert,	Decatur.
Hanna, Leland,	A. H.,	Garrison,	Benton.
Hansen, H. A.,	Agron.,	Goldfield,	Wright.
Hardman, C. J.,	A. H.,	Commerce,	*Georgia.*
Harmsen, Aura,	G. & D. S.,	Collins,	Story.
Hartnell, Fred,	A. H.,	Staceyville,	Mitchell.
Hartung, A. E.,	E. E.,	Estherville,	Emmet.
Hatch, H. C.,	E. E.,	George,	Lyon.
Haw, J. G.,	E. E.,	Ottumwa,	Wapella.
Hawk, E. G.,	A. H.,	Moravia,	Appanoose.
Heald, Willis,	A. H.,	Downey,	Cedar.

Heffner, F. M.,	E. E.,	Duncombe,	Webster.
Henderson, R. B.,	E. E.,	Cedar Rapids,	Linn.
Hendrix, W. C.,	Agri.,	Letts,	Louisa.
Herman, Joe,	E. E.,	Manchester,	Delaware.
Hershey, J. H.,	Sc. & Agri.,	North Platt,	*Nebraska.*
Higley, F. M.,	A. H.,	Cedar Rapids,	Linn.
Hintgen, L. M.,	C. E.,	Ashton,	Osceola.
Hise, F. H.,	M. E.,	Monroe,	Jasper.
Hoffman, G. C.,	C. E.,	Livermore,	Humboldt.
Hollenbeck, Lewis,	M. E.,	Des Moines,	Polk.
Holloway, Grace,	Sci.,	Ames,	Story.
Holmes, C. F.,	E. E.,	Boone,	Boone.
Honkomp, Charles,	C. E.,	Ashton,	Osceola.
Horcasitas, F.,	Agron.,	Chihauhau,	*Mexico.*
Horcasitas, P.,	C. E.,	Chihauhau,	*Mexico.*
Horton, Floyd,	M. E.,	Ames,	Story.
Hubbard, Lyle,	Sci.,	Sioux City,	Woodbury.
Hudson, C. R.,	E. E.,	Schaller,	Sac.
Hummel, B. L.,	Agri.,	Newton,	Jasper.
Hungerford, Josephine,	Sci.,	Carroll,	Carroll.
Hunter, G. B.,	E. E.,	Des Moines,	Polk.
Inman, E. K.,	E. E.,	Smithland,	Woodbury.
Jackson, H. D.,	E. E.,	Ames,	Story.
Jay, D. A.,	Agri.,	Blakesburg,	Wapello.
Jenks, L. L.,	E. E.,	Lamont,	Buchanan.
Jensen, G. J.,	E. E.,	Maquoketa,	Jackson.
John, Esther,	Sci.,	Cambridge,	Story.
Johnson, F. L.,	Sci.,	Boone,	Boone.
Johnson, W. W.,	E. E.,	Orient,	Adair.
Keigley, V. W.,	M. E.,	Madrid,	Boone.
Kelly, G. W.,	M. E.,	Newton,	Jasper.
Kelly, I. D.,	M. E.,	Newton,	Jasper.
Kenison, Frank,	A. H.,	Madrid,	Boone.
Knox, Ralph,	E. E.,	Marcus,	Cherokee.
Koepke, W. C.,	Hort.,	Davenport,	Scott.
Koontz, A. G.,	A. H.,	Des Moines,	Polk.
Korf, E. T.,	C. E.,	Newton,	Jasper.
Kramer, Charles,	E. E.,	Ames,	Story.
Kubela, Louis,	E. E.,	Belle Plaine,	Benton.
Kyhl, Louis,	E. E.,	Miles,	Jackson.
Lauer, R. E.,	C. E.,	Winfield,	Henry.
Law, V. V.,	M. E.,	Ames,	Story.
LaVern, Lee,	Sci. & Agri.,	Sac City,	Sac.
Leerberg, Nis,	M. E.,	Hubbard,	Hardin.
Leffler, Martha,	Sci.,	Stockport,	Van Buren.
Leffler, Mary,	Sci.,	Stockport,	Van Buren.
Lichty, Don P.,	E. E.,	La Verne,	Kossuth.
Lewis, D. R.,	E. E.,	Ames,	Story.
Long, G. J.,	E. E.,	Thornton,	Cerro Gordo.
Lowe, Forrest,	E. E.,	Fostoria,	Clay.
Ludgate, Frank,	E. E.,	Ft. Dodge,	Webster.

Luhr, W. E.,	C. E.,	College Sp'ngs,	Page.
McBurney, Eva,	D. S.,	Ames,	Story.
McCord, L. C.,	M. E.,	Bayard,	Guthrie.
McCoy, Edward,	E. E.,	Creston,	Union.
McCrary, R. R.,	C. E.,	Ames,	Story.
McDonald, May,	G. & D. S.,	Jewell,	Hamilton.
McEwen, P. H.,	E. E.,	Plover,	Pocahontas.
McLaughlin, C. A.,	A. H.,	Monticello,	Jones.
McMillan, J. G.,	Agron.,	Vinton,	Benton.
McMillan, L. E.,	A. H.,	Vinton,	Benton.
Madrazo, Jose C.,	A. H.,	Leon,	*Mexico.*
Manning, H. B.,	A. H.,	Keosauqua,	Van Buren.
Mead, Anna C.,	G. & D. S.,	Parkersburg,	Butler.
Mecham, G. N.,	C. E.,	Council Bluffs,	Pottawattamie.
Mercer, F. H.,	A. H.,	Elliott,	Montgomery.
Merrill, A. H.,	C. E.,	Livermore,	Humboldt.
Merwin, Chauncey,	M. E.,	Luverne,	Kossuth.
Metz, Chester A.,	E. E.,	Knoxville,	Marion.
Middleton, R. S.,	Agron.,	Minerva,	Marshall.
Miller, Ruben,	E. E.,	Woodward,	Dallas.
Miner, W. H.,	M. E.,	Waukon,	Allamakee.
Mooley, Byers,	E. E.,	Oskaloosa,	Mahaska.
Moore, Elnathan J.,	C. E.,	Hagamans,	*New York.*
Morrissey, F. R.,	E. E.,	Dubuque,	Dubuque.
Morrow, C. H.,	Sci.,	Conrad,	Grundy.
Morse, W. I.,	A. H.,	Ames,	Story.
Moseley, F. R.,	M. E.,	Lake City,	Calhoun.
Moses, T. R.,	Agron.,	Oak Park,	*Illinois.*
Mould, H. E.,	E. E.,	Sioux City,	Woodbury.
Mueller, W. G.,	Engr.,	Comanche,	Clinton.
Musgrove, F. B.,	M. E.,	Boone,	Boone.
Musgrove, S. A.,	M. E.,	Boone,	Boone.
Naiden, J. H.,	C. E.,	Woodward,	Dallas.
Neil, James E.,	M. E.,	Long Grove,	Scott.
Nichols, Mark E.,	E. E.,	Clinton,	Clinton.
Niccolls, J. F.,	Sci. & Agri.,	Morning Sun,	Louisa.
Niemeyer, A.,	E. E.,	Ames,	Story.
Noble, W. H.,	E. E.,	Graettinger,	Palo Alto.
Norris, Duroc,	C. E.,	Madrid,	Boone.
Nye, A. B.,	C. E.,	Essex,	Page.
Odendahl, I. E.,	C. E.,	Boone,	Boone.
Oliver, G. E.,	C. E.,	Onawa,	Monona.
Olsen, C. G.,	C. E.,	Ellsworth,	Hamilton.
Osborne, E. E.,	Agri.,	Weston,	Pottawattamie.
Osborn, Ora E.,	G. & D. S.,	Beaconsfield,	Ringgold.
Palmer, R. C.,	A. H.,	Eddyville,	Wapello.
Pammel, Harriett,	Sci.,	Ames,	Story.
Parker, B. L.,	E. E.,	Moscow,	Muscatine.
Passmore, E. B.,	E. E.,	West Liberty,	Muscatine.
Patrick, Frank,	C. E.,	Des Moines,	Polk.
Perrin, Eunice,	Sci.,	Mapleton,	Monona.

Pratt, F. L.,	E. E.,	Burt,	Kossuth.
Proctor, I. L.,	E. E.,	Nevada,	Story.
Pulver, C. W.,	C. E.,	Delhi,	Delaware.
Pusch, G. W.,	M. E.,	Tucson,	*Arizona.*
Quimm, J. F.,	M. E.,	Grand Mound,	Clinton.
Rankin, H. A.,	E. E.,	Portsmouth,	Shelby.
Ream, G. C.,	M. E.,	Broken Bow,	*Nebraska.*
Redford, Edwin L.,	E. E.,	Woolstock,	Wright.
Reed, C. L.,	Sci.,	Bradford,	*Illinois.*
Reeve, C. H.,	Sci.,	Geneva,	Franklin.
Reis, R. B.,	M. E.,	Little Rock,	Lyon.
Renne, J. D.,	M. E.,	Eagle Grove,	Wright.
Richardson, R. E.,	E. E.,	Armstrong,	Emmet.
Ries, Sabin,	Sci.,	Armstrong,	Emmet.
Rinehart, Harrison,	C. E.,	Coin,	Page.
Robb, G. L.,	E. E.,	Albia,	Monroe.
Roberson, L. M.,	M. E.,	Ames,	Story.
Robinson, O. R.,	E. E.,	Corwith,	Hancock.
Robison, Ray,	M. E.,	Joy,	*Illinois.*
Rohde, Ernest,	C. E.,	State Center,	Marshall.
Rohrer, W. H.,	Sc. and Agri.,	Melbourne,	Marshall.
Rohwer, A. C.,	E. E.,	Denison,	Crawford.
Rolston, J. Earl,	E. E.,	Conrad,	Grundy.
Rowe, S. S.,	C. E.,	Lacey,	*Washington.*
Russell, W. H. C.,	E. E.,	Milton,	Van Buren.
Sanford, R. H.,	Hort.,	Marshalltown,	Marshall.
Schmidt, C. A.,	M. E.,	Dubuque,	Dubuque.
Schnaidt, H. A.,	Agri.,	Menno,	*South Dakota.*
Schoel, Fred,	C. E.,	Gladbrook,	Tama.
Scoates, Daniel,	C. E.,	S. Milwaukee,	*Wisconsin.*
Scoates, Richard,	Min. E.,	S. Milwaukee,	*Wisconsin.*
Searle, Jesse E.,	Hort.,	Nemaha,	Pottawattamie.
Searle, Mary,	Sci.,	Nemaha,	Pottawattamie.
Searle, W. C.,	A. H.,	Nemaha,	Pottawattamie.
Seba, H.,	E. E.,	Monticello,	Jones.
Secor, Perry R.,	Agri.,	Melbourne,	Marshall.
Seeley, F. M.,	M. E.,	Biwabik,	*Minnesota.*
Seeley, W. E.,	Min. E.,	Ft. Madison,	Lee.
Sheller, Ernest M.,	A. H.,	Eldora,	Hardin.
Shields, Fred,	A. H.,	Villisca,	Montgomery.
Shupe, M. W.,	E. E.,	Elm Creek,	*Nebraska.*
Simms, W. H.,	Sci.,	Beaman,	Grundy.
Simons, G. A.,	A. H.,	Ida Grove,	Ida.
Simpson, J. W.,	A. H.,	Whittemore,	Kossuth.
Sims, W. H.,	Sci.,	Beaman,	Grundy.
Singer, Harold G.,	E. E.,	Winthrop,	Buchanan.
Slater, C. V.,	C. E.,	Des Moines,	Polk.
Smalley, J. H.,	Agron.,	Davenport,	Scott.
Smith, Percy T.,	A. H.,	Canton,	*South Dakota.*
Smith, R. F.,	E. E.,	Lake City,	Calhoun.
Snow, F. R.,	A. H.,	Blakesburg,	Wapello.

Snow, H. A.,	E. E.,	Blakesburg,	Wapello.
Souers, H. C.,	C. E.,	Des Moines,	Polk.
Southwick, Clyde,	E. E.,	Maxwell,	Story.
Stafford, R. R.,	E. E.,	Blairsburg,	Hamilton.
Stephens, Marie,	G. & D. S.,	Lohrville,	Calhoun.
Stevens, Thad,	Agri.,	Boone,	Boone.
Stewart, B. A.,	Sc. & Agri.,	Marshalltown,	Marshall.
Stewart, H. M.,	Agri.,	Ainsworth,	Washington.
Stewart, S. A.,	C. E.,	Des Moines,	Polk.
Stookey, D. D.,	A. H.,	Cedar Rapids,	Linn.
Stover, E. R.,	E. E.,	Newton,	Jasper.
Stull, Merwyn,	E. E.,	Oskaloosa,	Mahaska.
Swihart, R. M.,	A. H.,	Newton,	Jasper.
Tanner, P. A.,	M. E.,	Carson,	Pottawattamie.
Templeton, Henry,	Sci.,	Ames,	Story.
Templeton, W. J.,	E. E.,	Windside,	*Nebraska.*
Thomas, D. E.,	C. E.,	Ft. Dodge,	Webster.
Thomas, Roscoe,	M. E.,	North English,	Iowa.
Thornton, A. L.,	Min. E.,	Pocahontas,	Pocahontas.
Todd, Fred J.,	M. E.,	Cresco,	Howard.
Tompkins, Willie,	E. E.,	Garrison,	Benton.
Trezona, E. H.,	Sci.,	Strawberry Pt.,	Clayton.
Trimble, C. S.,	Dairy,	Alden,	Hardin.
Turner, Harold,	C. E.,	St. Ansgar,	Mitchell.
Van Alstine, Greta E.,	G & D. S.,	Gilmore City,	Pocahontas.
Van Deventer, J. R.,	A. H.,	Hedrick,	Keokuk.
Van Slyke, Fred,	C. E.,	Mitchellville,	Polk.
Van Slyke, Paul B.,	A. H.,	Des Moines,	Polk.
Wallace, D. Percy,	A. H.,	Chicago H'ghts,	*Illinois.*
Walston, J. N.,	C. E.,	Lowden,	Cedar.
Waterman, C. R.,	E. E.,	Newell,	Buena Vista.
Waterman, R. H.,	Agri.,	Richland,	Keokuk.
Wentsel, Claude,	E. E.,	Beamen,	Grundy.
Westfall, Vere,	E. E.,	Ames,	Story.
Whitaker, D. G.,	A. H.,	Hillsboro,	Henry.
Whitaker, W. S.,	C. E.,	Hillsboro,	Henry.
White, C. M.,	A. H,.	Belle Plaine,	Benton.
White, R. L.,	A. H.,	Ames,	Story.
Wifvat, Harry,	C. E.,	Perry,	Dallas.
Wilbur, Glen,	Sci.,	Carson,	Pottawattamie.
Wilcox, Frank,	C. E.,	Perry,	Dallas.
Wilfong, L. J.,	E. E.,	Mason City,	Cerro Gordo.
Wilson, I. D.,	M. E.,	Rockwell City,	Calhoun.
Winchell, J. I.,	M. E.,	Anita,	Cass.
Witwer, G. P.,	A. H.,	Cedar Rapids,	Linn.
Wood, C. D.,	C. E.,	Ames,	Story.
Wooley, J.,	Min. E.,	Keokuk,	Lee.
Wright, William,	M. E.,	Odebolt,	Sac.
Wygle, Fred,	C. E.,	Ames,	Story.
Young, H. R.,	E. E.,	Winfield,	Henry.
Zearfoss, Bert,	E. E.,	Ames,	Story.

Zentmire, D.,	Agri.,	Ames,	Story.
Zentmire, Zelma,	Sci.,	Ames,	Story.

SPECIAL.

NAME	COURSE	TOWN.	COUNTY.
Ageton, Maude,	Sci.,	Ames,	Story.
Agne, Glen,	A. H.,	Tipton,	Cedar.
Agne, B. E.,	A. H.,	Tipton,	Cedar.
Anderson, Lucy,	D. S.,	Hawthorne,	Montgomery.
Arney, Ralph,	Agron.,	Marshalltown,	Marshall.
Austin, C. F.,	M. E.,	Des Moines,	Polk.
Aves, R. E.,	A. H.,	Melbourne,	Marshall.
Barker, Edna,	Sci.,	Ames,	Story.
Barker, Harriett,	Sci.,	Ames,	Story.
Barnhart, J. C.,	A. H.,	West Branch,	Cedar.
Beede, Lillian,	Sci.,	Ames,	Story.
Beinhart, E. G.,	A. H.,	Ames,	Story.
Berdo, B. B.,	A. H.,	Washington.	Washington.
Bird, W. H.,	A. H.,	Compton,	*California.*
Bobst, J. A.,	E. E.,	Geneva,	Franklin.
Bonner, R. A.,	Agron.,	Jewell.	Hamilton.
Borson, S. P. C.,	C. E.,	Omaha,	*Nebraska.*
Brant, Will,	A. H.,	Meriden,	Cherokee.
Brennecke, Grace,	D. S.,	Marshalltown,	Marshall.
Brown, Clive F.,	Sc. & Agri.,	Sioux City,	Woodbury.
Brown, Helen E.,	D. S.,	Pueblo,	*Colorado.*
Burroughs, Agnes,	D. S.,	Marshalltown,	Marshall.
Campbell, Mabel,	D. S.,	Ames,	Story.
Carlson, R. Q.,	A. H.,	Meriden,	Cherokee.
Carson, W. L.,	A. H.,	Iowa City,	Johnson.
Christenson, William,	Agron.,	Linn Grove,	Buena Vista.
Collins, Edgar V.,	Agron.,	Marshalltown,	Marshall.
Copeland, C. B.,	M. E.,	Chariton,	Lucas.
Copeland, Harry,	A. H.,	Portsmouth,	Shelby.
Crabb, M. C.,	A. H.,	Shelbyville,	*Kentucky.*
Cunningham, Don,	A. H.,	Wayne,	*Nebraska.*
Day, Edna,	D. S.,	Keosauqua,	Van Buren.
Dinsmore, J. B.,	A. H.,	Ames,	Story.
Dixon, Guy,	Hort.,	Stuart,	Guthrie.
Dubes, C. C.,	Agron.,	Cherokee,	Cherokee,
Dunkelberg, Roy,	A. H.,	Rockford,	Floyd.
Du Val, Eugene,	M. E.,	Hastings,	Mills.
Eldridge, W. A.,	A. H.,	Delphi,	Indiana.
Elliott, N. L.,	A. H.,	Ames,	Story.
Ellis, W. J.,	A. H.,	Nevada,	Story.
Ericson, G. H.,	C. E.,	Armstrong,	Emmet.
Farley, Max,	A. H.,	Corning,	Adams.
Fedderson, M. H.,	A. H.,	Bryant,	Clinton.
Fenlon, R. L.,	M. E.,	Clinton,	Clinton.
Fey, Fred,	Sci.,	Burlington,	Des Moines.

Fish, R. J.,	A. H.,	Osage,	Mitchell.
Ford, Nellie B.,	Sci.,	Algonquin,	*Illinois.*
Frevert, Matilda,	Sci.,	Odebolt,	Sac.
Frost, L.,	Agron.,	Avoca,	Pottawattamie.
Fuchs, C. J.,	E. E.,	Ames,	Story.
Fuchs, O. C.,	A. H.,	Odebolt,	Sac.
Gardner, Will,	A. H.,	Paullina,	O'Brien.
Gilbertson, L. A.,	A. H.,	St. Ansgar,	Mitchell.
Gillie, James,	A. H.,	Ames,	Story.
Godfrey, G. W.,	A. H.,	Luverne,	Kossuth.
Godoy, E. V., Jr.,	A. H.,	Buenos Ayres,	*Argentine Rep.*
Goodsell, H. C.,	A. H.,	Nashua,	Chickasaw.
Gowdey, Alex,	Agron.,	Dexter,	Dallas.
Greene, W. M.,	C. E.,	Mt. Vernon,	Linn.
Haberkorn, Julien,	A. H.,	Cherokee,	Cherokee.
Hanna, H. E.,	Agron.,	Manchester,	Delaware.
Hardy, W. A.,	A. H.,	Goodland,	*Indiana.*
Hatch, Frank E.,	Agron.,	Sumner,	Bremer.
Hatting, Maud,	D. S.,	Keokuk,	Lee.
Hawbaker, E. H.,	A. H.,	Stratford,	Hamilton.
Hawk, Fred D.,	A. H.,	Cedar Falls,	Black Hawk.
Hawver, Flossie,	Sci.,	Ames,	Story.
Heaton, E. B.,	A. H.,	Shannon City,	Union.
Heuer, Lydia,	Sci.,	Dows,	Wright.
Hiersche, Earle,	Agron.,	Early,	Sac.
Holloway, Edith,	D. S.,	Ames,	Story.
Holloway, Mrs. Eleanor,	D. S.,	Ames,	Story.
Hopkins, Florence R.,	D. S.,	Marshalltown,	Marshall.
Hopkins, P. E.,	A. H.,	Villisca,	Montgomery.
Horn, Fay,	D. S.,	Newton,	Jasper.
Howard, E. Carlotta,	Sci.,	Ames,	Story.
Hunt, Edith,	D. S.,	Ackley,	Hardin.
Hyde, Helen,	Sci.,	Grinnell,	Poweshiek.
Igo, R. L.,	A. H.,	Indianola,	Warren.
Ingels, Theodore,	A. H.,	Meriden,	Cherokee.
Irwin, Orie F.,	A. H.,	Wall Lake,	Sac.
Iverson, W. C.,	A. H.,	Sargeant Bluff,	Woodbury.
Johnson, H. S.,	A. H.,	Sioux City,	Woodbury.
Johnson, M. L.,	A. H.,	Imogen,	*Minnesota.*
Jones, Maysie,	D. S.,	Des Moines,	Polk.
Jones, J. C.,	Min. E.,	Cedar Falls,	Black Hawk.
Keith, Nellie,	Sci.,	Delhi,	Delaware.
Kellogg, S. F.,	A. H.,	Des Moines,	Polk.
Kelsen, C.,	Sci.,	Jewell,	Hamilton.
Kepler, W. T.,	Agron.,	Davenport,	Scott.
Kosnar, A. F.,	A. H.,	Clutier,	Tama.
Kupfer, Agnes,	D. S.,	Rippey,	Greene.
Kupfer, H. G.,	A. H.,	Rippey,	Greene.
Larson, H. W.,	Sci.,	Swea City,	Kossuth.
Leffler, Irene,	D. S.,	Stockport,	Van Buren.
Lieberknecht, Arthur,	A. H.,	Letts,	Louisa.

Livingston, Esther,	D. S.,	Ames,	Story.
Lynch, Mrs. L. J.,	D. S.,	Ames,	Story.
McCleery, H. L.,	A. H.,	Washington,	Washington.
McDonald, Ethel,	D. S.,	Ames,	Story.
McFarlane, C. E.,	E. E.,	Waverly,	Bremer.
McMillan, J. B.,	A. H.,	Rock Rapids,	Lyon.
McMullen, Elizabeth,	D. S.,	Mt. Ayr,	Ringgold.
Mallory, A. E.,	A. H.,	Hampton,	Franklin.
Mason, G. E.,	A. H.,	Newburg,	Jasper.
Mata, Gabino, Jr.,	A. H.,	Juayua,	*Salvador, C. A.*
Mata, Secundino,	Agron.,	Juayua,	*Salvador, C. A.*
Maxwell, F. K.,	A. H.,	Traer,	Tama.
Maytag, Louise,	G. & D. S.	Newton,	Jasper.
Meickley, Karl,	Agron.,	Marshalltown,	Marshall.
Mellor, Marie,	Sci.,	Ames,	Story.
Merryman, J. I.,	A. H.,	Milford,	Dickinson.
Moody, Thomas,	A. H.,	Rensselaer,	*Indiana.*
Moore, D. V.,	Agron.,	Dunlap,	Harrison.
Morris, F. G.,	A. H.,	Ames,	Story.
Mueller, J. L.,	Agron.,	McGregor,	Clayton.
Murphy, John,	A. H.,	Reinbeck,	Grundy.
Myerly, Fred,	A. H.,	Des Moines,	Polk.
Myers, Ruth M.,	Sci.,	Hampton,	Franklin.
Nicoll, J. H.,	A. H.,	Goldfield,	Wright.
Nicholson, N. J.,	Min. E.,	Scranton,	Greene.
Nieva, J.,	A. H.,	Boac,	*Marinduque, P. I.*
Nordstrom, T. R.,	Agron.,	Shenandoah,	Page.
Norton, James,	A. H.,	Denison,	Crawford.
Paine, R. H.,	A. H.,	Eagle Grove,	Wright.
Palmer, Robert,	A. H.,	Sioux City,	Woodbury.
Parkinson, W. K.,	A. H.,	Rensselaer,	*Indiana.*
Patterson, H. F.,	A. H.,	Burt,	Kossuth.
Pearson, A. F.,	A. H.,	Washington,	Washington.
Phillips, T. J.,	Min. E.,	Hiteman,	Monroe.
Plager, L. W.,	A. H.,	Grundy Center,	Grundy.
Plager, Robert,	A. H.,	Grundy Center,	Grundy.
Potee, Flora Ruth,	D. S.,	Ames,	Story.
Potter, Ermine L.,	A. H.,	Bozeman,	*Montana.*
Prime, Vera,	G. & D. S.,	Ames,	Story.
Putnam, Ben,	A. H.,	Laurel,	Marshall.
Rankin, J. O.,	A. H.,	Ames,	Story.
Ray, Blanche,	Sci.,	Maxwell,	Story.
Reynolds, Guy,	A. H.,	Carson,	Pottawattamie.
Rhoades, F. O.,	Agron.,	Cooper,	Greene.
Richmond, R. R.,	A. H.,	Bancroft,	Kossuth.
Robbins, Frank A.,	Agron.,	Hastings,	Mills.
Roberts, R. E.,	A. H.,	Iowa City,	Johnson.
Roney, B. C.,	A. H.,	Conrad,	Grundy.
Rubel, W. G.,	M. E.,	Ames,	Story.
Salaverria, Edward,	Agron.,	Juayua,	*Salvador, C. A.*
Salmon, Lou,	D. S.,	Newton,	Jasper.

Sawyer, W. E.,	Dairy,	Des Moines,	Polk.
Schryver, C. E.,	A. H.,	Pocahontas,	Pocahontas.
Schueler, H. H.,	Agron.,	Ames,	Story.
Scott, Mrs. Elizabeth,	D. S.,	Ames,	Story.
Sewick, Vernon,	A. H.,	Jessup,	Buchanan.
Sexauer, Theo.,	Agron.,	Ankeny,	Polk.
Simon, Ed,	Sci.,	Council Bluffs,	Pottawattamie.
Slye, F. L.,	A. H.,	Manchester,	Delaware.
Smith, Leah,	D. S.,	Fairmont,	*Nebraska.*
Smith, Lester, H.,	Agron.,	Garner,	Hancock.
Smith, Norman,	A. H.,	Marcus,	Cherokee.
Sorrell, Walter,	A. H.,	Dadeville,	*Alabama.*
Souder, G. S.,	Agron.,	Rockwell City,	Calhoun.
Squires, W. S.,	A. H.,	Lexington,	*Kentucky.*
Stapp, Jay,	A. H.,	Columbus Jct.,	Louisa.
Stelle, A. C.,	Sci.,	Pasadena,	*California.*
Stephan, H. A.,	A. H.,	Wall Lake,	Sac.
Stoulil, W. G.,	C. E.,	Pocahontas,	Pocahontas.
Swanson, A. L.,	A. H.,	Swea City,	Kossuth.
Swift, G. K.,	Sci.,	Harlan,	Shelby.
Taylor, C. G.,	Agron.,	Sibley,	Osceola.
Thayer, May,	D. S.,	Clinton,	Clinton.
Thies, W. A.,	Agron.,	Avoca,	Pottawattamie.
Thomas, G. B.,	Sci.,	Livermore,	Humboldt.
Ullman, Roy,	A. H.,	Paullina,	O'Brien.
VanAlstine, Winifred P.,	D. S.,	Gilmore City,	Pocahontas.
Van Meter, S. L., Jr.,	A. H.,	Lexington,	*Kentucky.*
Van Osdol, A. S.,	A. H.,	Morrison,	*Illinois.*
Walker, Clark,	A. H.,	Jessup,	Buchanan.
Walker, H. B.,	C. E.,	Des Moines,	Polk.
Wallace, Isabel,	Sci.,	Spencer,	Clay.
Walls, Florence,	D. S.,	Clinton,	Clinton.
Warner, G. H.,	Agron.,	Forestburg,	*South Dakota.*
Welton, E. H.,	C. E.,	Shell Rock,	Butler.
Werges, S. J.,	A. H.,	National,	Clayton.
White, Ross,	C. E.,	Bagley,	Guthrie.
Wilkinson, Ralph,	A. H.,	Gowrie,	Webster.
Williams, Edna,	Sci.,	Madrid,	Boone.
Williams, J. C.,	Sci.,	Ames,	Story.
*Williams, J. R.,	A. H.,	Postville,	Allamakee.
Williams, S. Clyde,	Dairy,	Ames,	Story.
Wood, Edwin C.,	Sci.,	Brooklyn,	*New York.*
Wood, Herman,	A. H.,	Iowa Falls,	Hardin.
Woodruff, John,	Sci.,	Storm Lake,	Buena Vista.

SPECIAL COURSES.

NAME	COURSE	TOWN.	COUNTY.
Boland, J. J.,	1 yr. Dairy,	Elkader,	Clayton.
Bollman, V. G.,	1 yr. Dairy,	Castalia,	Winneshiek.
Church, S. S.,	1 yr. Dairy,	Ames,	Story.

---

*Deceased.

Christensen, Nels,	1 yr. Dairy,	Des Moines,	Polk.
Gleason, M. L.,	1 yr. Dairy,	Ames,	Story.
Henderson, Ray,	1 yr. Dairy,	Luana,	Clayton.
Huxoll, Carl,	1 yr. Dairy,	Lowden,	Cedar.
Johnson, R. D.,	1 yr. Dairy,	Alden,	Hardin.
Johnson, S. J. B.,	1 yr. Dairy,	Swea City,	Kossuth.
Knutson, Henry,	1 yr. Dairy,	Radcliffe,	Hardin.
Koeneke, J. C.,	1 yr. Dairy,	Waverly,	Bremer.
Lowdermilk, H. K.,	2 yr. Min. E.,	Des Moines,	Polk.
Miller, Harley,	1 yr. Dairy,	Holstein,	Ida.
Nelson, N. C.,	1 yr. Dairy,		
Stenberg, O. B.,	1 yr. Dairy,	Estherville,	Emmet.
Swatosh, E. A.,	1 yr. Dairy,	Belle Plaine,	Benton.
Sykes, B. E.,	1 yr. Dairy,	Ames,	Story.
Thomas, C. E.,	1 yr. Dairy,	Pomeroy,	Calhoun.
Trimble, C. A.,	1 yr. Dairy,	Alden,	Hardin.
Wilder, A. R.,	1 yr. Dairy,	Amboy,	*Minnesota.*
Williams, Sena,	1 yr. Dairy,	Ames,	Story.
Tolstrop, M. R.,	1 yr. Dairy,	Ames,	Story.

MUSIC STUDENTS.

NAME	TOWN.	COUNTY.
Akin, Grace,	Glidden,	Carroll.
Arthur, C. S.,	Spirit Lake,	Dickinson.
Ballard, Mrs. Fred,	Ames,	Story.
Baxter, G.,	Buckingham,	Tama.
Bechtle, Jennie,	Le Mars,	Plymouth.
Benjamin, Leona,	Newton,	Jasper.
Beuck, Henry,	Avoca,	Pottawattamie.
Bowers, Mary,	Alton,	Sioux.
Brennecke, Grace,	Marshalltown,	Marshall.
Brown, Bessie,	Sioux City,	Woodbury.
Brown, Lydia,	Ames,	Story.
Browne, Herman,	Knoxville,	Marion.
Burroughs, Agnes,	Marshalltown,	Marshall.
Cairns, Edith,	Ames,	Story.
Curtiss, Edith,	Ames,	Story.
Curtiss, Ruth,	Ames,	Story.
Dale, R. B.,	Cedar Rapids,	Linn.
Davis, Ralph E.,	New Virginia,	Warren.
Doggett, J.,	Ames,	Story.
Edenson, Selina,	Dow City,	Crawford.
Edmunds, Walter,	Sioux City,	Woodbury.
Eldridge, Madge,	Ames,	Story.
Ellis, Bertha (Mrs.),	Ames,	Story.
Emerson, J. G.,	Burchinal,	Cerro Gordo.
Fantz, Ruth,	Nevada,	Story.
Farley, Maxwell,	Corning,	Adams.
Frevert, Matilda,	Odebolt,	Sac.
Frevert, Gustavus,	Odebolt,	Sac.

Gibson, Estelline,	Maxwell,	Story.
Good, H. F.,	Newkirk,	*Oklahoma.*
Gordon, W. C.,	Hedrick,	Keokuk.
Granger, P. R.,	Essex,	Page.
Hardin, Max,	Ames,	Story.
Hatting, I. Maud,	Keokuk,	Lee.
Heath, Royce,	Ames,	Story.
Hyde, Helen,	Grinnell,	Poweshiek.
Irwin, O. F.,	Wall Lake,	Sac.
John, Esther,	Cambridge,	Story.
Johnson, V. P.,	Sioux City,	Woodbury.
Kepler, W. T.,	Davenport,	Scott.
Kerr, F. L.,	Manilla,	Crawford.
Kistler, Verna,	Ames,	Story.
Klise, Chester,	Clarinda,	Page.
Knapp, Seaman,	Ames,	Story.
Lockwood, H. A.,	Central City,	Linn.
Marvick, Linnie,	Story City,	Story.
McDonald, May,	Jewell,	Hamilton.
McMullen, Elizabeth,	Mt. Ayr,	Ringgold.
Mereness, Gertrude,	Sac City,	Sac.
Mills, Vera,	Jefferson,	Greene.
Molesberry, Stella,	Plymouth,	Cerro Gordo.
Myers, L. C.,	Shell Rock,	Butler.
Myers, Ruth,	Hampton,	Franklin.
Okey, C. W.,	Prescott,	Adams.
Orcutt, L. E.,	Council Bluffs,	Pottawattamie.
Osburn, Bertha,	Ames,	Story.
Pammel, Edna,	Ames,	Story.
Scott, Grace,	Ames,	Story.
Storms, Florence,	Ames,	Story.
Taylor, I. I.,	Storm Lake,	Buena Vista.
Thompson, Alex,	Davenport,	Scott.
Thompson, Phyrne,	Nevada,	Story.
Toms, Robert,	Marion,	Linn.
Troup, James,	Sioux City,	Woodbury.
Voln, Evelyn,	Story City,	Story.
Welch, Rose,	Center,	*Colorado.*
Zimmerman, Phoebe,	Ames,	Story.

ENROLLMENT FOR SHORT COURSES IN STOCK AND GRAIN JUDGING.

NAME	TOWN.	COUNTY.
Abraham, J. G.,	Mt. Pleasant,	Henry.
Agne, Fred,	Tipton,	Cedar.
Ahrens, E. A.,	State Center,	Marshall.
Ahrens, J. E.,	Nora Springs,	Floyd.
Airasmith, C. L.,	Larrabee,	Cherokee.
Alexander, Harry,	Silver City,	Mills.
Allee, Geo. M.,	Newell,	Beuna Vista.

Allemann, Ed.,	Slater,	Story.
Allen, C. W.,	Nevada,	Story.
Allen, Fred,	Laurens,	Pocahontas.
Allen, William,	Marne,	Cass.
Allison, J. P.,	State Center,	Marshall.
Alsager, E. S.,	Radcliffe,	Hardin.
Ames, C. H.,	Randolph,	Fremont.
Anderson, Emil A.,	Swea City,	Kossuth.
Anderson, G. G.,	Laurens,	Pocahontas.
Anderson, Pete,	Ringsted,	Emmett.
Anderson, Theo.,	Waterville,	Allamakee.
Anderson, W. C.,	West Liberty,	Muscatine.
Armstrong, John A.,	Ottumwa,	Wapello.
Arney, C. E.,	Albion,	Marshall.
Arnold, Clarence,	Klemme,	Hancock.
McArthur, D.,	Mason City,	Cerro Gordo.
Askew, George,	Stockport,	Van Buren.
Atkins, I. W.,	Dunkerton,	Black Hawk.
Baden, Fred,	Guthrie Center,	Guthrie.
Bailey, Chas.,	Farrar,	Polk.
Bakehouse, Albert,	Sigourney,	Keokuk.
Baker, Ray,	Mingo,	Jasper.
Ball, Elmer,	Ogden,	Boone.
Barber, Frank,	Corwith,	Hancock.
Barkdall, George, Jr.,	Vinton,	Benton.
Barrett, W. H.,	Jefferson,	Greene.
Barruiger, Ray,	Ruthven,	Palo Alto.
Batcheler, C. E.,	Sutherland,	O'Brien.
Bates, Harley,	Cambridge,	Story.
Bay, Bert,	Albia,	Monroe.
Bay, H. L.,	Albia,	Monroe.
Behrens, O. C.,	Volga City,	Clayton.
Bell, G. A.,	Washington,	D. C.
Bell, J. H.,	Washington,	D. C.
Bennett, Edison,	Ames,	Story.
Bennett, Geo.,	Ames,	Story.
Bennington, G. W.,	Volga,	Clayton.
Bentley, B. F.,	Boone,	Boone.
Benta, E. A.,	Malvern,	Mills.
Benton, J. H.,	Malvern,	Mills.
Berggren, E. D.,	Stanhope,	Hamilton.
Berry, Ed. R.,	Indianola,	Warren.
Beuck, John,	Avoca,	Pottawattamie.
Bird, W. H.,	Compton,	*California.*
Blankinship, Clarence,	Belknap,	Davis.
Bloomer, Howard,	Letts,	Louisa.
Bloomquist, H.,	Burnside,	Webster.
Blough, W. W.,	Waterloo,	Black Hawk.
Bly, Swan P.,	Radcliff,	Hardin.
Borofin, Will,	Grimes,	Polk.
Bohstedt, B. R.,	Victor,	Iowa.

Bolzien, E. H.,	Buck Grove,	Crawford.
Bollman, V. G.,	Ames,	Story.
Boelyn, Calvin,	Dubuque,	Dubuque.
Bolster, Ernest,	Monmouth,	Jackson.
Bower, Fred,	Patton,	Greene.
Bowman, Wilbur,	Clarence,	Cedar.
Boyd, Mark F.,	Madrid,	Boone.
Boynton, John,	Clarion,	Wright.
Boynton, P. J.,	Clarion,	Wright.
Boys, S. B.,	Creston,	Union.
Brandon, H. F.,	Rudd,	Floyd.
Brandhorst, Frank O.,	Hudson,	Black Hawk.
Braymer, F. J.,	Yetter,	Calhoun.
Brockway, J. M.,	Letts,	Louisa.
Brooks, F. R.,	Hopkinton,	Deleware.
Brown, Arthur,	Mitchellville,	Polk.
Brown, A. F.,	Jefferson,	Greene.
Brown, Carl,	Rosehill,	Mahaska.
Brown, C. C.,	Sac City,	Sac.
Brown, Elmer,	Olin,	Jones.
Brown, Grant,	Story City,	Story.
Brown, H. E.,	Salix,	Woodbury.
Brown, Roy,	Ames,	Story.
Brown, W. J.,	Rosehill,	Mahaska.
Brush, Geo.,	Coin,	Page.
Bryant, D. V.,	Minerva,	Marshall.
Buck, Herbert W.,	Greenfield,	Adair.
Buckley, Banner,	Coon Rapids,	Carroll.
Buell, R. E.,	Ida Grove,	Ida.
Burds, Joseph,	Peosta,	Dubuque.
Burgoon, Harry,	Patton,	Greene.
Burke, Chas. L.,	Kniereim,	Calhoun.
Burt, B. R.,	Coggon,	Linn.
Buttrick, Ralph,	Garrison,	Benton.
Byrnes, John,	Ames,	Story.
Caldwell, J. W.,	Afton,	Union.
Cameron, Arthur,	Oskaloosa,	Mahaska.
Campbell, C. W.,	Gravity,	Taylor.
Campbell, L. R.,	Council Bluffs,	Pottawattamie.
Campney, J. E.,	Plover,	Pocahontas.
Carlson, Edwin,	Gowrie,	Webster.
Carlson, Henry W.,	Ogden,	Boone.
Carris, Dale,	Keota,	Keokuk.
Carris, H. T.,	Keota,	Keokuk.
Cashen, J. A.,	Ground River,	Decatur.
Cavitt, Bruce,	Mt. Sterling,	Van Buren.
Champion, Howard,	Cherokee,	Cherokee.
Chandler, C. W.,	Kellerton,	Ringgold.
Chandler, H. S.,	Jefferson,	*South Dakota.*
Chestnut, Guy,	Adair,	Adair.
Childs, C. W.,	Greenfield,	Adair.

Childs, E. W.,	Des Moines,	Polk.
Chrisman, C. B.,	Neola,	Pottawattamie.
Christianson, S. P.,	Story City,	Story.
Christensen, Arthur,	Linn Grove,	Clay.
Chute, F. M.,	Lennox,	Taylor.
Claney, Will,	Clarence,	Cedar.
Clarke, C. W.,	Fairfield,	Jefferson.
Clark, Fred S.,	Algona,	Kossuth.
Clark, Homer D.,	Albia,	Monroe.
Clark, L. E.,	Mt. Vernon,	Linn.
Clark, S. W.,	Durham,	Marion.
Clampitt, Arthur,	N. Providence,	Hardin.
Clemons, H. P.,	Clemons,	Marshall.
Coburn, A. A.,	Cherokee,	Cherokee.
Combs, C. H.,	Washington,	Washington.
Combs, H. R.,	Thompson,	Winnebago.
Canavan, James,	Gowrie,	Webster.
Canavan, Pat,	Gowrie,	Webster.
Coonradt, Word,	Osage,	Mitchell.
Cooper, Morton,	Kniereim,	Calhoun.
Corwin, F. E.,	Rock Valley,	Sioux.
Countermine, R. H.,	Salix,	Woodbury.
Crane, R. W.,	Kelley,	Story.
Crory, A. W.,	Madrid,	Boone.
Crory, Floyd A.,	Marshalltown,	Marshall.
Clary, Ralph,	Madrid,	Boone.
Crawford, Lynn,	Frankville,	Winneshiek.
Croin, D. J.,	Volga,	Clayton,
Crouthamel, O. P.,	Gilbert,	Story.
Crow, F. N.,	Oxford,	Johnson.
Crumpacker, J. R.,	Arispe,	Union.
Daniels, Craig E.,	Moulton,	Appanoose.
Davidson, A. B.,	Stanwood,	Cedar.
Davis, F. C.,	Albion,	Marshall.
Davis, J. E.,	Ames,	Story.
Davison, M. E.,	Shambaugh,	Page.
Dawson, W. P.,	Quimby,	Cherokee.
Day, Geo.,	Afton,	Union.
Decker, Wm. J.,	Hedrick,	Keokuk.
Dee, John,	Brooklyn,	Poweshiek.
DefonBugh, Bert,	Redding,	Ringgold.
Deming, Lester,	Washta,	Cherokee.
Dickman, J. H.,	St. Paul,	*Minnesota.*
Dodd, John,	Randolph,	Fremont.
Doggett, Elmer,	Ames,	Story.
Doherty, John,	Rock Valley,	Sioux.
Doner, Arthur,	Lisbon,	Linn.
Donhowe, H. M.,	Story City,	Story.
Donhowe, John,	Story City,	Story.
Donohue, P. J.,	Holbrook,	Iowa.
Dooley, Harry,	Casey,	Guthrie.

Dubes, Clifford,	Cherokee,	Cherokee.
Duden, L. A.,	Lineville,	Wayne.
Duncan, Roy,	Morley,	Jones.
Dunlap, J. T.,	Farrar,	Polk.
Dunn, W. H.,	N. Providence,	Hardin.
Dunning, J. P.,	Moville,	Woodbury.
Durbin, J. M.,	Hedrick,	Keokuk.
Eastern, J. T.,	Ames,	Story.
Eattle, W. T.,	Minburn,	Dallas.
Eberle, J. H.,	Manilla,	Crawford.
Edington, Ira,	Spencer,	Clay.
Elia, H. Sanchez,	Ames,	Story.
Ellison, H. G.,	Mt. Vernon,	Linn.
Embree, Roy,	Olin,	Jones.
Engstrom, E. L.,	Boone,	Boone.
Eral, J. W.,	Pocahontas,	Pocahontas.
Erickson, Frank,	Newell,	Buena Vista.
Erickson, G. H.,	Armstrong,	Emmett.
Evans, G. W.,	Hedrick,	Keokuk.
Eveland, E. J.,	Jamaica,	Guthrie.
Farmer, H. B.,	DeKalb,	*Illinois.*
Farquhar, Geo. P.,	Coin,	Page.
Fawcett, J. S.,	Springdale,	Cedar.
Fels, Martin,	Douglas,	Fayette.
Fenn, O. G.,	Murray,	Clarke.
Ferrin, Amos,	Marcus,	Cherokee.
Fetter, Victor,	Washta,	Cherokee.
Fewings, Geo. J.,	Hudson,	Black Hawk.
Fike, L. K.,	Waterloo,	Black Hawk.
Findley, George A.,	Grimes,	Polk.
Fink, C. D.,	Denison,	Crawford.
Finnegan, John,	Monteith,	Guthrie.
Fischer, L. W.,	Castalia,	Monona.
Fitzgerald, M. T.,	Oxford,	Johnson.
Fleming, S.,	Arbor Hill,	Adair.
Flett, H. A.,	Dows,	Wright.
Frame, J. C.,	Salem,	Jefferson.
Frederick, Ray,	Lisbon,	Linn.
Frevert, Arthur,	Odebolt,	Sac.
Gaines, R. J.,	Altoona,	Polk.
Gardner, Ralph,	Eddyville,	Wapello.
Gardner, Walter,	Eddyville,	Wapello.
Garrels, A. J.,	Havelock,	Pocahontas.
Garrett, Charles,	Mitchellville,	Polk.
Garrett, W. B.,	Braddyville,	Page.
George, B. T.,	Janesville,	Bremer.
George, C. A.,	Winslow,	Black Hawk.
George, E. S.,	Graettinger,	Palo Alto.
Gelland, Oliver,	Sheffield,	Franklin.
Gerholdt, T. A.,	Cedar Falls,	Black Hawk.
Gfeller, J. W.,	Slater,	Story.

Gibson, R. W.,	Jesup,	Buchanan.
Gilbertson, Lewis,	St. Ansgar,	Mitchell.
Gilmore, I. T.,	Dixon,	Scott.
Gleason, H. G.,	Mechanicsville,	Cedar.
Godfrey, G. W.,	Luverne,	Kossuth.
Godry, Henry V.,	Ames,	Story.
Grodahl, G.,	Linn Grove,	Buena Vista.
Goodner, O. D.,	New Sharon,	Mahaska.
Gordon, L. H.,	Webster City,	Hamilton.
Graham, H. S.,	Albia,	Monroe.
Grant, A. K.,	Wilmont,	*Minnesota.*
Gray, W. L.,	Adel,	Dallas.
Green, Merritt, Jr.,	Marshalltown,	Marshall,
Green, Merritt, Sr.,	Marshalltown,	Marshall,
Greer, C. K.,	Monticello,	Jones.
Gribbon, Marcell,	De Witt,	Clinton.
Grice, Tery,	Ackley,	Franklin.
Gring, C. E.,	Dallas Center,	Dallas.
Guernsey, S. C.,	Ames,	Story.
Gunn, Carl,	Dana,	Greene.
Haddock, G. W.,	Marshalltown,	Marshall.
Hadley, W. J.,	Fort Dodge,	Webster.
Hafke, H. F.,	Bronson,	Woodbury.
Hafke, J.,	Bronson,	Woodbury.
Hall, Everett,	Whiting,	Monona.
Ham, A. D.,	Shambaugh,	Page.
Hammans, W. J.,	Afton,	Union.
Hannah, R. Ralph,	Breda,	Carroll.
Hannet, J. H.,	Columbus Jct.,	Louisa.
Hansell, J. W.,	Humboldt,	Humboldt.
Hansen, Edmund,	Dean,	Appanoose.
Hansen, H. P.,	Algona,	Kossuth.
Hanson, Lloyd,	Dean,	Appanoose.
Hanson, Nels,	Exira,	Audubon.
Harmon, E. W.,	Marshalltown,	Marshall.
Harmon, Mrs. E. W.,	Marshalltown,	Marshall.
Harriff, P. G.,	Lamoni,	Decatur.
Harris, D. B.,	Rowan,	Wright.
Harris, H. T.,	Hubbard,	Hardin.
Hartigan, J. S.,	Soldier,	Monona.
Hasbrock, I. O.,	Humeston,	Wayne.
Haugen, Thomas,	Nordness,	Winneshiek.
Hawkins, Fred,	Maxwell,	Story.
Haversten, Jacob,	Jewell,	Hamilton.
Heaton, C. E.,	Randolph,	Fremont.
Hegg, John,	Decorah,	Winneshiek.
Heller, John,	Victor,	Iowa.
Helene, O. E.,	Marcus,	Cherokee.
Helmke, C. C.,	Renwick,	Humboldt.
Helvig, A. J.,	Roland,	Story.
Henning, Davis,	Sac City,	Sac.

Hermansen, Albert,	Ruthven,	Palo Alto.
Herrold, Fred,	Grimes,	Polk.
Hibbs, M. J.,	Mitchellville,	Polk.
Hicks, Charles,	Early,	Sac.
Hill, Albert,	Ellsworth,	Hamilton.
Hilliary, S. J.,	Burlington,	Des Moines.
Hilton, H.,	Malvern,	Mills.
Hinde, A. H.,	Early,	Sac.
Hjelm, Peter,	Peterson,	Clay.
Hoffman, W. E.,	Cody,	*Wyoming.*
Hofler, J. T.,	Nora Springs,	Floyd.
Holland, Tom,	Kelly,	Story.
Hollander, E. J.,	Logan,	Harrison.
Holstrum, W. R.,	Stanhope,	Hamilton.
Hood, Henry J.,	Springville,	Linn.
Houston, R. E.,	Clarinda,	Page.
Howard, E. B.,	Marshalltown,	Marshall.
Howard, G. F.,	New Providence,	Marshall.
Howes, H. G.,	Greencastle,	*Missouri.*
Huffman, Everette,	Owasa,	Hardin.
Hughes, S. C.,	Newton,	Jasper.
Hull, Chester,	West Bend,	Palo Alto.
Humphrey, Lewis,	Van Horn,	Benton.
Hunter, A. C.,	Cranston,	Muscatine.
Huntington, Frank,	Corning,	Adams
Huntington, H. G.,	Onawa,	Monona.
Hutchins, I. W.,	Algona,	Kossuth.
Hutchison, C. R.,	West Branch,	Cedar.
Hutchison, L. C.,	West Branch,	Cedar.
Huth, L. K.,	Washington,	Washington.
Irvine, Arthur,	Traer,	Tama.
Iverson, Knut,	Decorah,	Winneshiek.
Ives, R. M.,	Pioneer,	Humboldt.
Jack, M.,	Montezuma,	Poweshiek.
Jacob, F. W.,	Cedar Falls,	Black Hawk
Jacobs, Alvin I.,	Dallas Center,	Dallas
Jacobson, D. H.,	Gilbert Station,	Story.
Jacobson, N. H.,	Ames,	Story.
Jeffs, R. E.,	Ames,	Story.
Jensen, J. E.,	Sac City,	Sac.
Jermen, O. M.,	Anthon,	Woodbury.
Jewell, M. E.,	Sharpsburg,	Taylor.
Johnson, Albert,	Gowrie,	Webster.
Johnson, A. E.,	Orient,	Adair.
Johnson, Emil,	Madrid,	Boone.
Johnson, E. G.,	Cambridge,	Story.
Johnson, Frank E.,	Gravity,	Taylor.
Johnson, H. S.,	Sioux City,	Woodbury.
Johnson, J. H.,	Stratford,	Hamilton.
Johnson, M. L.,	Swea City,	Kossuth.
Johnston, C. A.,	Storm Lake,	Buena Vista.

Johnston, Ray,	Col. Junction,	Louisa.
Jolliffe, Charles,	Ottosen,	Humboldt.
Jensen, Marton P.,	Exira,	Audubon.
Judson, E. C.,	Lamoni,	Decatur.
Juhl, Chris,	Estherville,	Emmet.
Juhl, J.,	Ringsted,	Emmet.
Keary, Frank,	Lake City,	Calhoun.
Kehoe, Thomas F.,	Hopkinton,	Delaware.
Keenan, Frank,	Shenandoah,	Page.
Kelley, A. D.,	Granger,	Dallas.
Kelsey, Bruce,	Dawson,	Dallas.
Kennedy, Geo. H.,	West Branch,	Cedar.
Kennedy, Leonard,	Rolfe,	Pocahontas.
Kent, Lowell,	Jewell,	Hamilton.
Kierscht, Harry,	Mineola,	Mills.
Kimmel, M. L.,	Sheldon,	O'Brien.
King, P. M.,	Ames,	Story.
Klopping, Adolph,	Weston,	Pottawattamie.
Kramer, A. Fred,	Elkader,	Clayton.
Kroneck, Frank,	Pocahontas,	Pocahontas.
Kuhfuss, Albert,	Minier,	*Illinois.*
Kummrow, P. A.,	Renwick,	Humboldt.
Kurtz, Hubert,	Pleasant Plain,	Jefferson.
Kurtzwell, George,	Altoona,	Polk.
Lacock, Leroy,	Mt. Vernon,	Linn.
Lancaster, E. J.,	Union,	Hardin.
Lancaster, O. G.,	Union,	Hardin.
Lane, Geo.,	Masonville,	Buchanan.
Larsen, Hans,	Ringsted,	Emmet.
Larson, Daniel,	Emmetsburg,	Palo Alto.
Larson, Lewis,	Onawa,	Monona.
Lasher, Irving,	Webster City,	Hamilton
Law, Harry,	Audubon,	Audubon.
Lawrence, W. E.,	Memphis,	*Missouri.*
Leahy, J. F.,	Parnell,	Iowa.
Lee, Asa,	Mitchellville,	Polk.
Leem, W. G.,	Mitchellville,	Polk.
Leerberg, Chris,	Hubbard,	Hardin.
Leffler, A. R.,	Stockport,	Van Buren.
Lieberknecht, W. H.,	Col. Junction,	Louisa.
Lloyd, E. A. R.,	Mason City,	Cerro Gordo.
Long, C.,	Farrar,	Polk.
Lopot, Godfrey,	Cedar Rapids,	Linn.
Lormor, H. A.,	Murray,	Clarke.
Lowe, Bert,	Letts,	Louisa.
Lucas, Robert,	Kanawha,	Hancock.
Lyons, R. G.,	Center Junct.,	Jones.
McBride, A. R.,	Zearing,	Story.
McCabe, W. D.,	Osage,	Mitchell.
McConnell, R. C.,	Linden,	Dallas.
McDonald, W. A.,	Ames,	Story.

McDougall, Roland R.,	Melvin,	Osceola.
McGovern, Joseph,	Peosta,	Dubuque.
McKell, Ryle,	Indianola,	Warren.
McKelvy, Q. P.,	Corydon,	Wayne.
McKinney, D. C.,	Knierim,	Calhoun.
Mack, John,	Clarion,	Wright.
Madden, Walter T.,	Keosauqua,	Van Buren.
Magel, Geo.,	Sidney,	Fremont.
Magel, Glen,	Sidney,	Fremont.
Magel, Lee,	Sidney,	Fremont.
Manly, E. L.,	Wall Lake,	Sac.
Maron, W. C.,	Glidden,	Carroll.
Martin, Herman,	Mt. Ayr,	Ringgold.
Martin, Scott,	Sheldon,	O'Brien.
Mason, William,	Carlisle,	Warren.
Mather, S. D.,	Clarksville,	Butler.
Matson, Andrew,	Blairsburg,	Hamilton.
Matson, Enos,	Blairsburg,	Hamilton.
Mast, F. M.,	Ottumwa,	Wapello.
Mauss, A. F.,	Belmond,	Wright.
Mawdsley, Edward,	Burt,	Kossuth.
Maxwell, J. M.,	Crawfordsville,	Washington.
Maxwell, Robert,	Crawfordsville,	Washington.
Maygille, J. P.,	Elkader,	Clayton.
Mayland, Louis,	Jewell,	Hamilton.
Meltger, W. D.,	Ames,	Story.
Melson, R.,	Rolfe,	Pocahontas.
Mechener, Vern,	Mt. Hamill,	Lee.
Miller, Carrol,	Pierson,	Cherokee.
Miller, Charles,	Dubuque,	Dubuque.
Miller, E. A.,	Kalona,	Johnson.
Miller, Henry,	Dixon,	Scott.
Miller, Asa,	Preston,	Johnson.
Miller, William,	Dixon,	Scott.
Moen, A. H.,	Inwood,	Lyon.
Moffitt, Lewis,	Newton,	Jasper.
Moline, O. J.,	Swea City,	Kossuth.
Moncruf, Sherman,	Center Junct.,	Jones.
Monroe, John,	Ames,	Story.
Moore, Charlie,	Dows,	Wright.
Morley, Harry,	Gravity,	Taylor.
Morris, Walter,	Wapello,	Louisa.
Morrow, W. W.,	Afton,	Union.
Morton, Clarence,	Moville,	Woodbury.
Moylan, Albert T.,	Bayard,	Guthrie.
Mudge, Geo. W.,	Ottumwa,	Wapello.
Mueller, J. L.,	McGregor,	Clayton.
Muller, J. H.,	Victor,	Iowa.
Murchison, John A.,	Griswold,	Cass.
Murphy, W. M.,	Parnell,	Iowa.
Neal, B. C.,	Mt. Vernon,	Linn.

Neal, B. H.,	Mt. Vernon,	Linn.
Neff, E. H.,	Liscomb,	Marshall.
Nelson, Anton J.,	Goldfield,	Wright.
Nelson, Chris,	Underwood,	Pottawattamie.
Nelson, Emil,	Stratford,	Hamilton.
Nelson, Gurton,	Cambridge,	Story.
Nelson, Miller S.,	Goldfield,	Wright.
Nelson, Walter,	Brayton,	Audubon.
Neil, M.,	Hopkinton,	Delaware.
Nevins, F. E.,	Gravity,	Taylor.
Newell, J. D.,	Col. Junction,	Louisa.
Niedert, George,	State Center,	Marshall.
Niedert, H. H.,	State Center,	Marshall.
Nymand, Harry,	Brayton,	Audubon.
O'Connor, B. S.,	Honey Creek,	Pottawattamie.
Odell, W. L.,	Gravity,	Taylor.
Olive, E. A.,	Scranton,	Greene.
Olson, C. A.,	Laurens,	Pocahontas.
Olson, F.,	Laurens,	Pocahontas.
Olson, G. E.,	Laurens,	Pocahontas.
Osborn, O.,	Maxwell,	Story.
Pack, L. L.,	Paton,	Greene.
Packer, E. J.,	Marshalltown,	Marshall.
Palmer, C. C.,	Eddyville,	Wapello.
Parker, Chas. S.,	New Hampton,	Chickasaw.
Parker, Guy,	Malvern,	Mills.
Parker, Thomas,	Malvern,	Mills.
Parkison, John,	Bagley,	Guthrie.
Parizek, James,	North Liberty,	Johnson.
Pashby, Geo. C.,	Cedar Falls,	Black Hawk.
Patz, Carl,	Algona,	Kossuth.
Paul, Robert J.,	Gilman,	Marshall.
Pearson, Clayton,	Ainsworth,	Washington.
Peiteman, Charles,	Grimes,	Polk.
Pennigroth, Wm.,	Tipton,	Cedar.
Pequignot, Ned,	Fairfield,	Jefferson.
Peters, G. W.,	Sac City,	Sac.
Peters, O. B.,	Cherokee,	Cherokee.
Peterson, Edwin,	Gowrie,	Webster.
Phillips, W. C.,	What Cheer,	Keokuk.
Piercy, J. L.,	Rolfe,	Pocahontas.
Pierson, Ray,	Henderson,	Mills.
Pilmer, Charles,	Norwalk,	Warren.
Platt, Walter J.,	Cedar Falls,	Black Hawk.
Plodsen, Emil,	Waterville,	Allamakee.
Poduska, C. W.,	Pocahontas,	Pocahontas.
Poheim, John,	Thor,	Humboldt.
Polzien, C. H.,		
Porter, C. E.,	Centerville,	Appanoose.
Porter, C. R.,	Ames,	Story.
Porter, F. C.,	Ames,	Story.

Powers, J. F.,	Persia,	Harrison.
Powers, Willie,	Rockwell City,	Calhoun.
Price, E. L.,	Tama,	Tama.
Pritchard, H. A.,	Ogden,	Boone.
Purdy, Geo. H.,	Mason City,	Cerro Gordo.
Quaife, Elvin,	Ionia,	Chickasaw.
Rabe, L. G.,	Alta Vista,	Chickasaw.
Raben, Christopher,	Cedar Falls,	Black Hawk.
Raben, Fred,	Cedar Falls,	Black Hawk.
Rankin, F. H.,	Urbana,	*Illinois.*
Rasmussen, H. L.,	Newell,	Buena Vista.
Reed, Ernest,	Lenox,	Taylor.
Reed, G. N.,	Lenox,	Taylor.
Reed, Jesse,	Lenox,	Taylor.
Reed, Perry,	Guthrie Center,	Guthrie.
Reeder, Floyd,	Tipton,	Cedar.
Reese, Howard,	Turin,	Monona.
Reedel, A. J.,	Albion,	Marshall.
Reedel, R. H.,	Albion,	Marshall.
Reitter, Fred,	Britt,	Hancock.
Renshaw, F. H.,	Inwood,	Lyon.
Rex, C. S.,	Creston,	Union.
Rhoades, C. A.,	Cooper,	Greene.
Rhoades, F. O.,	Cooper,	Greene.
Rice, B. B.,	Grand Island,	*Nebraska.*
Richie, R. W.,	Allerton,	Wayne.
Ritchie, J. C.,	Stratford,	Hamilton.
Ritland, L. J.,	Roland,	Story.
Robb, E. J.,	Marshalltown,	Marshall.
Roberts, E. D.,	Red Oak,	Montgomery.
Roberts, Melvin,	Madrid,	Boone.
Robinson, H. E.,	Manchester,	Delaware.
Robinson, M. G.,	Kelly,	Story
Rock, Herbert,	Dixon,	Scott.
Rockhill, Oscar,	Larchwood,	Lyon.
Rogers, R. A.,	Sargent's Bluff,	Woodbury.
Roggenbach, R. F.,	Altona,	*Nebraska.*
Rogstad, Hans,	Lake Mills,	Winnebago.
Rose, G. C.,	Stratford,	Hamilton.
Roseland, Conrad,	Dunbar,	Marshall.
Rosene, N. A.,	Meriden,	Cherokee.
Rothfolk, Ed.,	Cooper,	Greene.
Rubel, A. S.,	Ottumwa,	Wapello.
Runft, Emil F.,	Reinbeck,	Grundy.
Runge, Ed.,	Osage,	Mitchell.
Rue, Ole S.,	Northwood,	Worth.
Russell, D. H.,	Bagley,	Guthrie.
Rute, L. M.,	Fonda,	Pocahontas.
Ryan, Absolom,	Pella,	Marion.
Soderveck, Will C.,	Gowrie,	Webster.
Safley, H. J.,	Tipton,	Cedar.

Salisbury, H. J.,	Cresco,	Howard.
Sandee, Albert J.,	Gowrie,	Webster.
Sanders, F. L.,	Hartley,	O'Brien.
Sanders, J. M.,	Hartley,	O'Brien.
Sanders, Maynard,	Lost Nation,	Clinton.
Sayler, George W.,	Valley Junction,	Polk.
Schaaf, George,	Imogene,	Fremont.
Schaffnor, Milton,	Erie,	*Pennsylvania.*
Scholes, W. W.,	Onawa,	Monona.
Schooler, W.,	Des Moines,	Polk.
Schreiber, Martin,	Sibley,	Osceola.
Schultz, C. G.,	Victor,	Iowa.
Schultz, J. C.,	Ringsted,	Emmet.
Schwanz, Arthur,	Lorimer,	Union.
Scott, J. N., Jr.,	Kelley,	Story.
Scott, Lisle,	Elwell,	Story.
Seline, Arvid,	Stanhope,	Hamilton.
Sewick, V. S.,	Jesup,	Black Hawk.
Shallenberger, A. C.,	Alma,	*Nebraska.*
Shepard, E. D.,	Gilbert,	Story.
Shepard, T.,	Gilbert,	Story.
Shettle, Al,	Cooper,	Greene.
Shipley, E. R.,	Linnville,	Wayne.
Shultz, Edward,	Lost Nation,	Clinton.
Simpson, J. C.,	Des Moines,	Polk.
Skromme, Ole,	Roland,	Story.
Smith, Earl,	Clemons,	Marshall.
Smith, Lester,	Arthur,	Ida.
Smith, Mortie,	Rosehill,	Mahaska.
Smith, O. C.,	Marshalltown,	Marshall.
Smith, W. M.,	Hazelton,	Buchanan.
Sneed, Cam. R.,	Moulton,	Appanoose.
Snyder, H. B.,	Masonville,	Buchanan.
Sparks, L. M.,	Gilbert,	Story.
Spence, Robert,	Laurel,	Marshall.
Stamm, Silvis,	Letts,	Louisa.
Stephens, Leland,	Ruthven,	Palo Alto.
Sterrett, J. M.,	Allerton,	Wayne.
Stevenson, Will,	Hancock,	Pottawattamie.
Stewart, James,	Davenport,	Scott.
Stewart, Orson,	Ida Grove,	Ida.
Stewart, Sam,	Maynard,	Fayette.
Stivers, Ray,	Olin,	Jones.
Stonebreaker, F. G.,	Silver City,	Mills.
Stanfield, Perry,	Auburn,	Sac.
Storre, O. K.,	Kensett,	Worth.
Strobehm, Herman,	Reinbeck,	Grundy.
Straw, E. S.,	Hampton,	Franklin.
Stroppel, John,	West Branch,	Cedar.
Suss, Oscar,	Graettinger,	Palo Alto.
Sutton, W. H.,	San Antonio,	*Texas.*

Swanson, Algot,	Swea City,	Kossuth.
Sweeney, F. J.,	No. Buena Vista,	Clayton.
Swenson, M.,	Callender,	Webster.
Squires, Charles,	Atlantic,	Cass.
Tanner, W. A.,	Palo,	Linn.
Taylor, C. A.,	Ames,	Story.
Teig, K. P.,	Roland,	Story.
Thies, Charles,	Meriden,	Pottawattamie.
Thomas, R. F.,	Guthrie Center,	Guthrie.
Thompson, J. I.,	Panora,	Guthrie.
Thompson, Thorval,	Le Grand,	Marshall.
Thorn, A. F.,	Glidden,	Carroll.
Thornburg, M. G.,	Linden,	Dallas.
Tiernan, P. J.,	Patterson,	Madison.
Tietjens, Hugo,	Mason City,	Cerro Gordo.
Tobin, A.,	New Richmond,	*Wisconsin.*
Tolstrup, James,	Jewell Junction,	Hamilton
Tornan, F. J.,	Diagonal,	Ringgold.
Torkelson, Lawrence,	Sioux Rapids,	Buena Vista.
Tounkin, Curtis,	Montrose,	Lee.
Tracy, E. E.,	Nashua,	Chickasaw.
Tracy, G. E.,	Nashua,	Chickasaw.
Treanor, E. J.,	Ogden,	Boone.
Treloar, E.,	Nora Springs,	Cerro Gordo.
Tucker, E. E.,	Creston,	Union.
Tyler, O. P.,	Van Horn,	Benton.
Vail, A. C.,	Nevada,	Story.
Van Cleve, W. K.,	Storm Lake,	Buena Vista.
Van Deventer, Ray,	Gale,	Guthrie.
Van Patton, G. M.,	Indianola,	Warren.
Viland, Martin,	Cambridge,	Story.
Vodraska, J. A.,	Pocahontas,	Pocahontas.
Wahls, John,	St. Olaf,	Clayton
Wallace, John,	Albia,	Monroe.
Walter, Charles,	Mitchellville,	Polk.
Walter, Guy,	Guthrie Center,	Guthrie.
Walters, W. T.,	Dow City,	Crawford.
Warder, Claude,	Ottumwa,	Wapello.
Warder, Madison,	Ottumwa,	Wapello.
Warner, George,	Forestburg,	*South Dakota.*
Wasson, Carl,	Panora,	Guthrie.
Watt, Andrew,	Anamosa,	Jones.
Wearin, J. F.,	Hastings,	Mills.
Weatherby, P. C.,	Denison,	Crawford.
Welch, William,	Masonville,	Delaware.
Werts, O. G.,	Russell,	Lucas.
Wessling, C. M.,	Patton,	Greene.
Wessling, W. J.,	Patton,	Greene.
West, H. H.,	Mt. Vernon,	Linn.
Wittrig, Henry,	Crawfordsville,	Washington.
Wittrig, Sam,	Crawfordsville,	Washington.

Welty, John,	Casey,	Adair.
Wentworth, E. M.,	State Center,	Marshall.
White, Charles,	Belle Plaine,	Benton.
White, George,	Nevada,	Story.
Whitman, H. F.,	Panora,	Guthrie.
Whittum, J. H.,	Stuart,	Adair.
Wickersham, W. A.,	Melbourne,	Marshall.
Wickham, C. M.,	Mt. Vernon,	Linn.
Wickham, F. C.,	Mt. Vernon,	Linn.
Weigman, G. C.,	Rolfe,	Pocahontas.
Wilkinson, Ralph,	Gowrie,	Webster.
Willer, Art,	Moville,	Woodbury.
Willer, J. E.,	Tipton,	Cedar.
Wilmarth, H. W.,	Corning,	Adams.
Williams, Arthur,	Ottumwa,	Wapello.
Williams, H. C.,	Villisca,	Montgomery.
Williams, H. J.,	Ames,	Story.
Williams, S. C.,	Marshalltown,	Marshall.
Wilson, Alex,	West Liberty,	Muscatine.
Wilson, O. E.,	Winfield,	Henry.
Witham, R. E.,	Orient,	Adair.
Withoit, Harry,	Oskaloosa,	Mahaska.
Witmer, J. N.,	Tipton,	Cedar.
Worner, France,	Goldfield,	Wright.
Wolfe, C. W.,	Harper,	Keokuk.
Wood, Roy,	Soldier,	Monona.
Woolsey, J. L.,	Webster City,	Hamilton.
Wright, Roy,	Stuart,	Adair.
Young, Fred,	Des Moines,	Polk.
Youngquist, Warner,	Gowrie,	Webster.
Zehring, O. O.,	Germantown,	*Ohio.*
Zeller, Willard,	Cooper,	Greene.
Zimmerman, A. T.,	Washta,	Cherokee.

ENROLLMENT FOR SHORT COURSE IN DAIRYING.

NAME	TOWN	COUNTY.
Allen, H. S.,	Alta,	Buena Vista.
Austin, R. C.,	Deckerville,	*Michigan.*
Ballantyne, Frank,	Atwood,	*Ontario, Can.*
Bancroft, H. P.,	Monticello,	Jones.
Bartlett, John,	Sumner,	Bremer.
Beatty, Frank,	Galena,	*Illinois.*
Beck, J. M.,	Goldfield,	Wright.
Bentz, A. H.,	Delhi,	Delaware.
Borgtum, T. M.,	Namaha,	Sac.
Bratney, H. M.,	Wichita,	*Kansas*
Brownlee, B. O.,	Kanawha,	Hancock.
Bremer, Fred,	Frederick,	Bremer.
Brook, J. O.,	Earling,	Shelby.
Capper, O. C.,	West Gate,	Fayette.

Chawgo, C. E.,	Prescott,	Adams.
Christensen, Nels,	Des Moines,	Polk.
Cleveland, C. H.,	Mason City,	Cerro Gordo.
Crabb, W. R.,	Greeley,	Delaware.
Crugen, J. R.,	Des Moines,	Polk.
Culp, T. E.,	Liscomb,	Marshall.
Davis, F. I.,	Coon Rapids,	Carroll.
Day, C. A.,	Sumner,	Bremer.
Day, Geo.,	Sumner,	Bremer.
Driver, D. L.,	Burt,	Kossuth.
Dubbs, W. C.,	Alburnette,	Linn.
Edwards, W. R.,	Williamsburg,	Iowa.
Emry, G. A.,	Ryan,	Delaware.
Engebretsen, N. N.,	Emmons,	*Minnesota.*
Foy, Frank E.,	Des Moines,	Polk.
Fenton, N. S.,	Quimby,	Cherokee.
Frost, J. C.,	St. James,	*Minnesota.*
Gowdey, L. E.,	Dexter,	Dallas.
Gilbert, C. T.,	Werley,	*Wisconsin.*
Gustin, O. J.,	Clearfield,	Taylor.
Hanna, J. T.,	Lone Rock,	Kossuth.
Jackman, G. R.,	Clemmons,	Marshall.
Jarvis, A. C.,	Humeston,	Wayne.
Jordan, G. E.,	Amherst,	*Wisconsin.*
Kucker, W. D.,	Fairville,	Palo Alto.
Krause, E.,	Elbert City,	Buena Vista.
Kelsen, C.,	Jewell Junction	Hamilton.
Lowe, Ernest,	Clotho,	*Minnesota.*
Lipavsky, W.,	Ely,	Linn.
McAravy, J. J.,	Coggon,	Linn.
McCreery, L. W.,	Marcus,	Cherokee.
Matravers, C. H.,	Casey,	Guthrie.
Mortenson, Lewis,	Titonka,	Kossuth.
Naa, K. T.,	Slater,	Story.
Nelson, J. P.,	Brayton,	Audubon.
Nelson, L. P.,	Exira,	Audubon.
Rogers,	Odebolt,	Sac.
Samis, S.,	Hubbard,	Hardin.
Scott, G. F.,	Magnolia,	Harrison.
Sharpe, J. F.,	Newell,	Buena Vista.
Skitt, W. H.,	Adair,	Adair.
Smith, J. S.,	Preston,	Jackson.
Sorenson, C.,	Nevinville,	Adams.
Spohn, A. J.,	Miles,	Jackson.
Stone, W. A.,	Central City,	Linn.
Taff, J. M.,	Guthrie Center,	Guthrie.
Thompson, W. C.,	La Salle,	*Minnesota.*
Vollman, Joe,	St. Atkinson,	Winneshiek.
Wallace, B. S.,	Ames,	Story.
Webb, G. W.,	Baxter,	Jasper.
Widdel, A. J.,	Dewar,	Black Hawk.
Zell, F. M.,	Sumner,	Bremer.

ENROLLMENT FOR SHORT OURSE IN FARM DAIRYING.

NAME	TOWN	COUNTY.
Allison, J. P.,	State Center,	Marshall.
Arnold, Clarence,	Klemme,	Hancock.
Byrnes, J. T.,	Ames,	Story.
Davis, Raymond,	Clemens,	Marshall.
Day, George,	Afton,	Union.
Enlow, Grant,	Birmingham,	Van Buren.
Forbes, W. A.,	Ames,	Story.
Hunt, W. F.,	Ocheyedan,	Osceola.
Massey, W. B.,	Woodland,	Decatur.
Mata, G., Jr.,	Juayua,	*Salvador, C. A.*
Paschal, D. L.,	De Witt,	Clinton.
Lawrence, C. W.,	Eldora,	Hardin.
Salaverria, E.,	Juayua,	*Salvador, C. A.*

ENROLLMENT FOR SHORT COURSE IN DOMESTIC SCIENCE.

NAME	TOWN.	COUNTY.
Arnold, Amanda,	Klemme,	Hancock.
Askew, Myrtle,	Stockport,	Van Buren.
Barum, Mary,	Sibley,	Osceola.
Beach, Nellie,	New Providence,	Hardin.
Bliss, Edith C.,	Diagonal,	Ringgold.
Davis, Beulah,	Clemens,	Marshall.
Davis, Miranda,	Clemens,	Marshall.
Felter, Inez,	Washta,	Cherokee.
Fintel, Mrs. E. H.,	Ames,	Story.
Frevert, Matilda,	Odebolt,	Sac.
Gormley, Gladys,	Bondurant,	Polk.
Gustafson, Lottie,	Stratford,	Hamilton.
Jones, Mrs. J. W.,	Ames,	Story.
Knowlton, Mrs. E. W.,	Grinnell,	Poweshiek.
Latham, Ida,	Boone,	Boone.
Lehmann, Rosa,	Slater,	Story.
Lehmann, Verana,	Slater,	Story.
Neal, Mabel,	Mt. Vernon,	Linn.
Porter, Mrs. Annie,	Centerville,	Appanoose.
Powers, Lauriel,	Rockwell City,	Calhoun.
Schreiber, Nemily,	Sibley,	Osceola.
Sealine, Elvira,	Stanhope,	Hamilton.
Sealine, Nettie,	Stanhope,	Hamilton.
Settlemeyer, Alice,	Des Moines,	Polk.
Steigerwalt, Mrs. J. S.,	Ames,	Story.
Severson, Esella,	Cambridge,	Story.
Severson, Ella,	Cambridge,	Story.
Thornburg, Mrs. M. G.,	Linden,	Dallas.
Van Pelt, Mrs. H. G.,	Ames,	Story.
Wagner, Adaline,	Ankeny,	Polk.
Werts, Stella,	Russell,	Lucas.
Zimmerman, Emma,	Washta,	Cherokee.

STUDENT ENROLLMENT AT IOWA STATE COLLEGE.

1906-07.

Course	Post Grad.	Sr.	Jr.	Soph.	Fr.	Acad.	Sp.	Total
Civil Engineering..........		41	33	65	107	66	7	319
Mechanical Engineering....		12	17	21	53	44	5	152
Electrical Engineering.....		29	41	49	79	92	3	293
Mining Engineering........		2	1	9	15	7	3&1*	38
Academic Engineering......						1		1
Science	2	10	3	17	22	26	26	106
General & Domestic Science		10	10	27	38	10	2	97
Domestic Science..........		1	1	8	9	1	26	46
Science and Agriculture....	2				3	6	1	12
Animal Husbandry.........	5	16	21	33	78	49	89	291
Agronomy	3	5	6	9	16	11	26	76
Horticulture and Forestry..	2	3	5	6	12	3	1	32
Academic Agriculture......						14		14
Dairying	1	2	3	5	1	1	2&21**	36
Veterinary		8	17	16	41			82
Total	15	139	158	265	474	331	213	1595

* 2 yr. Mining Engineering.
** 1 yr. Dairy.

Students in college courses.............	1595
Winter Short course students............	765
Special Music Students..................	21
Grand Total	2381

All students having ten hours or more below Freshman grade are classified as Academic students. In a great number of cases, however, the greater part of their work is in the Freshman year. The total number of purely Academic students would, therefore, be considerably less than the above classification would indicate.

LIST OF ALUMNI

* Before a name indicates deceased.

* After the address indicates an old address. Late information lacking.

GRADUATES OF 1872.

J. C. Arthur, B. S., M. S., Lafayette, Indiana.
P. S. Brown, B. S., Chico, California.
O. H. Cessna, B. S., A. M., D. D., Station A, Ames, Iowa.
*S A. Churchill, B S.
*S. H. Dickey, B. S.
Chas. N. Dietz, B. S., Omaha, Nebraska.
Luther Foster, B. S., M. S. A., Las Cruces, New Mexico.
*H. Fuller, B. S.
*F. L. Harvey, B. S., M. S.
*E. M. Hungerford, B. S.
Mattie (Locke) Macomber, B. S., 3020 Kingman Ave., Des Moines, Iowa.
J. K. Macomber, B. S., 510 Youngerman Blk., Des Moines, Iowa.
L. W. Noyes, B. S., 234 Lincoln Park Blvd., Chicago, Illinois.
Henry L. Page, B. S., Leeds Station, Iowa.
G. W. Ramsey, B. S., Masonville, Iowa.
*Fannie (Richards) Stanley, B. S.
*C. A. Smith, B. S.
*I. W. Smith, B. S., M. D.
*H. C. Spencer, B. S.
E. W. Stanton, B. S., M. S., Station A, Ames, Iowa.
J. L. Stevens, B. S., 728 Linn St., Boone, Iowa.
C. L. Suksdorf, B. S., 1910 Marquette St., Davenport, Iowa.
*T. L. Thompson, B. S.
C. H. Tillotson, B. S., Paola, Kansas.
*C. P. Wellman, B. S.
John M. Wells, B. S., Nevada, Iowa.

GRADUATES OF 1873.

Edward L. Beard, B. S., R. F. D. No. 5, Decorah, Iowa.
Rowena (Edson) Stevens, B. S., 728 Linn St., Boone, Iowa.
*G. R. Flower, B. S.
W. Green, B. S., Care Horticultural Dept., Des Moines, Iowa.
*G. W. Harvey, B. S.
A. M. Hawkins, B. S.
D. A. Kent, B. S., Jewell, Iowa.
Kate (Krater) Starr, B. S., 704 Spruce St., Boulder, Colorado.
*J. S. Lee, B. S.
Chas. B. Maben, B. S., Wealthwood, Minnesota.
M. F. Marshall, B. S.

Hattie (Raybourne) Morse, B. S., 1347 High St., Denver, Colorado.
W. O. Robinson, B. S., 219 East 8th St., Oklahoma, Oklahoma.
M. Stalker, B. S., V. S., M. S., Station A, Ames, Iowa.
Sallie (Stalker) Smith, B. S., Station A, Ames, Iowa.

GRADUATES OF 1874.

Stella (Bebout) Morse, B. S., Main St., Sevastopol, Des Moines, Iowa.
C. D. Boardman, B. S., Okeene, Oklahoma.
Chas. S. Chase, B. S., 517 Franklin St., Waterloo, Iowa.
Chas. E. Clingan, B. S., 814 6th St., Sioux City, Iowa.
E. R. Clingan, B. S., Belt, Montana.
*C. P. Hastings, B. S.
Geo. W. Kiesel, B. S., 57 Highland Place, Dubuque, Iowa.
*M. C. Litteer, B. S.
G. E. Marsh, B. S., Osage, Iowa.
O. P. McCray, B. S., Vivian, South Dakota.
Mary (Palmer) Snell, B. S., 711 Crawford St., Boone, Iowa.
A. A. Parsons, B. S., 326 Nevada Ave., Colorado Springs, Colorado.*
Eva (Paull) Van Slyke, B. S., 1406 10th St., Des Moines, Iowa.
E. A. Pyne, B. S., Waverly, Iowa.
Ida (Smith) Noyes, B. S., 234 Lincoln Park Blvd., Chicago, Illinois.
*W. R. Smith, B. S.
*Kate (Tupper) Galpin, B. S.
J. R. Whitaker, B. S., 703 Carroll St., Boone, Iowa.
*S. Y. Yates, B. S.

GRADUATES OF 1875.

E. P. Cadwell, B. S.
Millah (Cherrie) Whiting, B. S., 636 30th Ave., Denver, Colorado.
Alice (Cunningham) Culver, B. S., 4th & Main Sts., Knoxville, Iowa.
Lizzie (Curtiss) Foster, B. S., Las Cruces, New Mexico.
R. P. Kelley, B. S.
W. R. Lamoreux, B. S., 923 North Van Buren St., Stockton, California.
C. H. Lee, B. S.
Hannah (Lyman) Cadwell. B. S.
Frank J. Macomber, B. S., Lewis, Iowa.*
Celestia (Neal) Gearhart, B. S., 359 Grand Ave., Astoria, Oregon.
T. L. Palmer, B. S., 614 Kirby St., Lake Charles, Louisiana.
H. R. Patrick, B. S., Phoenix, Arizona.
C. E. Peterson, B. S., Panora, Iowa.
*Ida (Ross) Boardman, B. S.
M. E. Rudolph, B. S., Canton, South Dakota.
Ida (Sherman) Caulkins, B. S., Storm Lake, Iowa.
L. C. Thornton, B. S.
J. M. Whitaker, B. S., 12 East Main St., Marshalltown, Iowa.
Nancy (Wills) Roundy, B. S.
Lizzie (Wilson) Edwards, B. S., 903 Lafayette St., Waterloo, Iowa.

GRADUATES OF 1876.

Martin I. Aitken, B. S., 1812 F. St., Lincoln, Nebraska.
Arthur P. Barker, B. S., 224 5th Ave., Clinton, Iowa.

L. W. Beard, B. S.
A. M. Blodgett, B. S., 5 Water Works Bldg., Kansas City, Missouri.
Julia (Blodgett) Hainer, B. S., Aurora, Nebraska.
*L. A. Claussen, B. S.
J. E. Cobbey, B. S., 1505 So. 3rd St.. Beatrice, Nebraska.
W. S. Collins, B. S., Basin, Wyoming.*
Winifred (Dudley) Shaw, B. S., 16th & Euclid Ave., Upland, Cal.
J. J. Fegtley, B. S., 211 South Main St., Wichita, Kansas.*
G. A. Gerard, B. S.
Wm. T. Gilmore, B. S., 620 5th St., Tipton, Iowa.*
James F. Hardin, B. S., Eldora, Iowa.
Ella (Harlow) McKinzie, B. S., Cor. Elm & 23rd St., Spokane, Wash.
A. E. Hitchcock, B. S., Mitchell, South Dakota.
W. M. James, B. S.
Ella (Mead) Dissmore, B. S., Dissmore, North Dakota.*
H. N. Scott, B. S., 489 Jefferson St., Portland, Oregon.*
A. B. Shaw, B. S., 16th & Euclid Ave., Upland, California.
L. E. Spencer, B. S., 450 New York Bldg, Seattle, Washington.
W. W. Woodward, B. S.

GRADUATES OF 1877.

Frank W. Booth, B. S., 1525 35th St., N. W., Washington, D. C.
Alfa (Campbell) Fassett, B. S., 118 South Scoville Ave., Oak Park, Ill.
Mary (Carpenter) Hardin, B. S., Eldora, Iowa.
C. C. Colclo, B. S., Carroll, Iowa.
Kate (Curtis) Mirick, B. S., Monticello, Iowa.
J. W. Doxsee, B. S., Monticello, Iowa.
Mary (Farwell) Carpenter, B. S., Monticello, Iowa.
A. P. Hargrave, B. S., Armstrong, Iowa.*
W. A. Helsell, B. S., Odebolt, Iowa.
J. B. Hungerford, B. S., Carroll, Iowa.
W. N. Hunt, B. S., Bellingham, Washington.
*R. F. Jordan, B. S.
*Cora B. (Keith) Pierce, B. S.
Edwin L. King, B. S., Osceola, Nebraska.
George I. Miller, B. S., 427 Story St., Boone, Iowa.
J. C. Milnes, B. S., 3546 Forest Ave., Chicago, Illinois.
Alice (Neal) Gregg, B. S., Traer, Iowa.
Cora (Patty) Payne, B. S., Linden, Iowa.*
L. B. Robinson, B. S., 1010 Baldwin St., Harlan, Iowa.*
T. L. Smith, B. S., 134 10th St., Milwaukee, Wisconsin.
F. L. Stratton, B. S., Iroquois, South Dakota.*
*H. M. White, B. S.

GRADUATES OF 1878.

*Florence (Brown) Martin, B. S.
Richard Burke, B. S., 221-223 1st Ave., Oskaloosa, Iowa.*
H. L. Glenn, B. S., 924 11th Ave., Helena, Montana.*
A. E. Griffith, B. S., M. S., 703 Madison Ave., Council Bluffs, Iowa.*
J. C. Hainer, B. S., M. S., 309 Security Bldg., St. Louis, Missouri.
Milan M. Hitchcock, B. C. E., 412 Pullman Bldg., Chicago, Illinois.

Thomas F. Lee, B. S., Box 98, Lakeport, California.*
C. E. Martin, B. C. E.
J. C. Meredith, B. C. E.
C. F. Mount, B. C. E., C. E., Homewood, Pennsylvania.
J. N. Muncey, B. S., Jesup, Iowa.*
Emma (McHenry) Glenn, B. S., 924 11th Ave., Helena, Montana.*
David McKinnon, B. S., California, Iowa.*
Ellen (Rice) Robbins, B. S., 290 McGregor St., Manchester, New Hamp.
Wm. K. Robbins, B. S., 290 McGregor St., Manchester, New Hampshire.
L. (Shepherd) Beckwith, B. S., Santa Rela, California.
Ida (Twitchell) Blochman, B. S., Santa Maria, California.*
E. G. Tyler, B. C. E., Logan, Iowa.*
J. W. Whitney, B. S., Prariesburg, Iowa.
Geo. W. Wilson, B. C. E., 3324 University Ave., Des Moines, Iowa.
Belle Woods, B. S.

GRADUATES OF 1879.

Malinda (Cleaver) Faville, B. S., 428 Pool St., Norfolk, Virginia.
*Carrie (Carter) Hanson, B. S.
Lillie (Croy) Lee, B. S.
Geo. C. Faville, B. S., D. V. M., 428 Pool St., Norfolk, Virginia.
Frank N. Field, B. C. E., 715 Foster St., Burlington, Iowa.*
Frederick H. Friend, B. C. E., 897 Ashland Ave., St. Paul, Minnesota.*
Albert L. Hanson, B. C. E., Ada, Minnesota.*
T. V. Hoggatt, B. S., 808 Bush St., San Francisco, California.*
James Hyde, B. S., New Rockford, North Dakota.*
Louis L. Manwaring, B. S., 303 West Olive St., Stillwater, Minnesota.
W. G. McConnon, B. M. E., 1024 South Ave., Wilkinsburg, Pa.*
Jennie (McElyea) Beyer, B. S., 901 Kellogg St., Ames, Iowa.
*J. C. Noble, B. S.
Herbert Osborn, B. S., M. S., 485 King Ave., Columbus, Ohio.
Warren M. Scott, B. S., Kiona, Washington.
James D. Shearer, B. S., 517 1st Ave., South, Minneapolis, Minn.
Fremont Turner, B. M. E., 902 16th St., Des Moines, Iowa.
J. M. Waugh, B. S., 1525 Monadnock Bldg., Chicago Ill.
*Genevieve (Welch) Barstow, B. S.
Alice (Whited) Burling, B. S., Eldora, Iowa.
Willis Whited, B. M. E., M. E., 286 Main St., Pittsburg, Pa.*

GRADUATES OF 1880.

M. J. Bailey, B. S., Custer, South Dakota.
*F. Boddy, B. S.
*D. D. Briggs, B. S.
O. B. Brown, B. S., Meservey, Iowa.
M. Hakes, B. S., Laurens, Iowa.
D. S. Hardin, B. S., Alma, Nebraska.
*E. D. Harvey, B. S.
J. Hassett, B. S.
Carrie (Lane Chapman) Catt, B. S., Hotel Marie Antoinette, New York City, New York.

*C. H. McGrew, B. S.
*R. M. Nicholson, B. S.
*G. E. Reed, B. S.
J. L. Simcoke, B. S., Adel, Iowa.
C. D. Taylor, B. S., Juneau, Alaska.*
W. A. Thomas, D. V. M., 645 N. 13th St., Lincoln Nebraska.*
James Vincent, D. V. M., 702 Thomas Ave., Shenandoah, Iowa.
W. B. Welch, B. S., D. V. M., 353 West Ave., Marshall, Missouri.*

GRADUATES OF 1881.

W. C. Armstrong, B. C. E., C. E., 225 Central Ave., Wilmette, Ill.
Nellie (Bell) McGavern, B. S., Missouri Valley, Iowa.
A. M. Beresford, B. S., Orleans, Nebraska.*
Thomas Burke, B. S., Baker City, Oregon.*
Chas. M. Coe, B. S., Cor. 11th & Broadway, Kansas City, Missouri.*
Frank E. Colby, B. C. E., Onawa, Iowa.
*Marilla J. Crossman, B. S.
James S. Dewell, B. S., Missouri Valley, Iowa.
C. A. Dodge, B. C. E., Orange City, Iowa.*
E. C. Fortner, B. S., 3462 S. Halstead St., Chicago, Ill.
F. E. Furry, B. S., Alden, Iowa.
Mark J. Furry, B. S., Alden, Iowa.
Julia Hanford, B. S., 811 South 11th St., Tacoma, Washington.
*R. J. Hopkins, B. S.
W. O. McElroy, B. C. E., Newton, Iowa.
Jno. S. McGavern, B. S., Missouri Valley, Iowa.
Wm. H. McHenry, B. S., 2901 Rutland Ave., Des Moines, Iowa.
Jennie (Perrett) Gault, B. S., University of So. Dak., Vermillion, S. D.
Alice (Sayles) Osborn, B. S., 485 King Ave., Columbus, Ohio.
Thos. W. Shearer, B. S., M. S., Wallisville, Texas.

GRADUATES OF 1882.

W. D. Atkinson, B. S., 1605 Forrest Ave., Parsons, Kansas.*
*J. A. Blaine, B. S.
Etta M. Budd, B. S., Ames, Iowa.
*Geo. M. Catt, B. C. E., C. E.
Mary (Coe) Lorbeer, B. S., 781 Holt Ave., Pomona, California.
Wm. V. A. Dodds, B. S., 1207 N. 7th St., Beatrice, Nebraska.*
W. M. Dudley, B. S., 300 Church St., Shenandoah, Iowa.*
*H. J. Gable, B. S.
Charles I. Lorbeer, B. S., 781 West Holt Ave., Pomona, California.
J. B. Marsh, B. M. E., 1700 9th St., Des Moines, Iowa.
E. A. McDonald, B. S., San Isabel, Porto Rico.
Jno. R. McKim, B. S., 304 Maple Ave., Kansas City, Missouri.
Nellie (Merrill) Wheeler, B. S., Inglewood, California.*
Della A. Neal, B. S., 16 Augusta Ave., Atlanta, Georgia.
J. H. Patten, B. S.
Hattie A. Perrett, B. S., Rock Falls, Iowa.
Lizzie Perrett, B. S., Rock Falls, Iowa.
O. C. Peterson, B. S., 159 La Salle St., Chicago, Illinois.

*Kitty E. Reeve, B. S.
Chas. F. Saylor, B. S., 3415 Cottage Grove Ave., Des Moines, Iowa.
Sarah (Smith) McDonald, B. S., San Isabel, Porto Rico.
D. T. Stockman, B. S., Sigourney, Iowa.
Williamson Summers, B. S., Omaha, Nebraska.
W. W. Wheeler, B. S., 1715 9th St., Des Moines, Iowa.*
W. U. White, B. S., Hope, North Dakota.

GRADUATES OF 1883.

A. M. Allen, B. S., 2116 Kenwood Parkway, Minneapolis, Minnesota.*
Allison G. Andrews, B. C. E., U. S. Surveyor General's Office, Salt Lake City, Utah.
G. M. Burnham, B. S., Ashland, Wisconsin.*
Luberta (Carson) Cleave, B. S., 224 Catherine St., Ottawa, Illinois.*
George Caven, B. C. E., 41 E. 48th St., Chicago, Illinois.
Jennie L. Christman, B. S., 150 Jay St., Albany, New York.
Virginia (Colclo) Quint, B. S., 1715 W. Ninth St., Des Moines, Iowa.
Geo. W. Curtiss, B. S. A., M. S. A., Fort Worth, Texas.*
C. M. Doxsee, B. S., Campbell, California.
*Lottie Estes, B. S.
C. H. Flynn, D. V. M., Postville, Iowa.
*Jessie (Frater) Muncey, B. S.
R. M. Hunter, B. S., Sibley, Iowa.
Chas. H. Kegley, B. S. A., 970 18th St., Oakland, California.
Herman Knapp, B. S. A., Station A, Ames, Iowa.
Minnie (Knapp) Mayo, B. S., 519 Pujo St., Lake Charles, La.
Mary (McDonald) Knapp, B. S., Station A, Ames, Iowa.
Kate (McNeill) Wells, B. S., Masillon, Ohio.
Elwood Mead, B. S., C. E., 1513 Rhode Island Ave., Washington, D. C.*
A. M. Miller, B. S., 1314 E. 13th St., Des Moines, Iowa.
Emily A. Reeve, B. S., 1909 9th St., Des Moines, Iowa.
M. J. Riggs, B. C. E., 3136 Collingwood Ave., Toledo, Ohio.
S. C. Scott, B. S.
*Effie G. Slater, B. S.
F. J. Smith, B. S., 2311 Carpenter Ave., Des Moines, Iowa.
M. E. Wells, B. S., Massillon, Ohio.
W. D. Wells, B. S., 1716 Park Ave., Davenport, Iowa.
Agatha (West) Ramsey, B. S., Rock Rapids, Iowa.
Mabel (Young) Alexander, B. S., 119 E. Maple St., Clarion, Iowa.

GRADUATES OF 1884.

J. F. Armstrong, B. S., Faulkton, South Dakota.
Edna (Bell) Anderson, B. S., Missouri Valley, Iowa.
T. F. Bevington, B. S., 28th & Rebecca St., Sioux City, Iowa.
Geo. R. Chatburn, B. C. E., Station A, Lincoln, Nebraska.
C. J. Clark, B. C. E.
J. E. Daugherty, B. C. E., 1420 West 7th St., Texarkana, Texas.
*W. P. Dickey, B. S.
L. M. Garrett, B. S., 703 W. 7th St., Des Moines, Iowa.
J. W. Gill, B. C. E.

B. T. Hainer, B. S., 1002 E St., Perry, Oklahoma.
Hermine (Hainer) Gabel, B. S., 446 Hamilton Ave., Palo Alto, Cal.
*A. E. (Henry) Quint, B. S., M. Ph.
G. B. Hibbs, B. S., Mitchellville, Iowa.
A. S. Hitchcock, B. S. A., M. S., Dept. of Agriculture, Washington, D. C.
F. A. Huntley, B. S. A., 14 Quince St., North Yakima, Washington.*
F. L. Lambert, B. S. A., R. F. D. No. 3, Charles City, Iowa.*
W. E. D. Morrison, D. V. M., 978 McGarry St., Los Angeles, Cal.*
E. J. Nichols, B. C. E., 407 Juan Linn Ave., Victoria, Texas.*
G. M. Osborn, D. V. M., 126 A Ave., East, Cedar Rapids, Ia.*
F. L. Pitman, B. C. E.
J. F. Porter, B. C. E., 1356 4th Ave., Davenport, Iowa.
Addie (Rice) Hainer, B. S., Webster Groves, St. Louis, Mo.*
Chas. H. Sloan, B. S., Geneva, Nebraska.
G. W. Thompson, B. C. E.
C. Vincent, B. S., 1812 Chicago St., Omaha, Nebraska.*
M. Vincent, B. S. A., Lake Charles, Louisiana.*
Ione (Weatherby) Marsh, B. S., 1700 9th St., Des Moines, Iowa.
*W. J. Wicks, B. S.
W. H. Wier, B. S., Swan, Iowa.
Alfred Williams, B. C. E., Treadwell, Alaska.*
Fannie Wilson, B. S., Charles City, Iowa.
G. W. Wormley, B. C. E., Newton, Iowa.

GRADUATES OF 1885.

C. S. Bowie, B. M. E., 732 Pacific Ave., Tacoma, Washington.
L. G. Brown, B. C. E., Care York Bridge Co., York, Pennsylvania.
Chas. A. Carey, B. S., D. V. M., Auburn, Alabama.
D. B. Collier, B. S. A., Durant, Iowa.
D. E. Collins, D. V. M.
G. H. Glover, B. S., D. V. M., 608 S. Howes St., Ft. Collins, Colorado.
Geo. F. Goodnow, B. S., M. S., 537 Genesee St., Waukegan, Illinois.
Elam Gray, B. C. E., 156 High St., Blue Island, Illinois.
W. A. Grow, B. S., Grantsville, Montana.*
W. M. Hays, B. S. A., Dept. of Agriculture, Washington, D. C.
*E. N. Hill, B. M. E.
D. L. Hutchinson, B. C. E.
Hannah (Hutton) Shearer, B. S., Wallisville, Texas.
L. D. Jackson, B. M. E.
Mark E. Johnson, D. V. M., Corning, Iowa.
G. W. Knorr, B. S. A., Clarks Station, Kentucky.*
*C. J. Lee, B. S.
Frank Leverett, B. S., 312 North Thayer St., Ann Arbor, Michigan.
J. C. Lipes, B. S., 880 Bedford Ave., Brooklyn, New York.
J. C. B. Lockwood, B. C. E., 506-7 Lumber Exchange, Portland, Oregon.
Albert G. Mosier, B. C. E., Sedro-Woolley, Washington.
*Anna (McConnon) Bevington, B. S.
L. F. McCoy, B. C. E., 1202 4th Ave, Spokane, Washington.
Anna (Nichols) Goodnow, B. S., 537 Genesee St., Waukegan, Illinois.
W. B. Niles, D. V. M., Ames, Iowa.
*Oak G. Norton, B. S. A.

J. G. Pope, B. M. E., 857 19th St., Oakland, California.*
Emma (Porter) Sloan, B. S., Geneva, Nebraska.
A. U. Quint, B. S., 1715 W. 9th St., Des Moines, Iowa.
E. E. Sayres, D. V. M., Algona, Iowa.
F. S. Schoenleber, B. S. A., M. S. A., 1639 Wabash Ave., Chicago, Ill.*
I. B. Schreckengast, B. S., Washington, Iowa.
Lydia (Schreckengast) Collier, B. S., Durant, Iowa.
S. Stewart, D. V. M., Kansas City, Missouri.*
C. E. Underhill, B. S., Onawa, Iowa.

GRADUATES OF 1886.

James W. Bradford, B. C. E., 10255 So. Elizabeth St., Washington Height Station, Chicago, Illinois.
B. Buchli, B. S., D. V. M., Sunbeam, Kansas.
P. S. Burns, B. S., Institute Technology, Boston, Massachusetts.*
H. L. Chatterton, D. V. M., Peterson, Iowa.
S. D. Clough, B. S.
M. Z. Farwell, B. S., La Junta, Colorado.*
*V. C. Gambell, B. S.
Wm. E. Gamble, B. S., 103 State St., Chicago, Illinois.
Geo. W. Greene, B. S. A., 1702 North 26th St., South Omaha, Nebraska.
S. H. Hedges, B. C. E., 95 Yesler Way, Seattle, Washington.
W. B. Hunter, B. S.
A. P. Johnson, B. C. E., Sigourney, Iowa.
E. S. Johnson, D. V. M., Morning Sun, Iowa.*
G. A. Johnson, D. V. M., Exchange Bldg., Sioux City, Iowa.
H. J. Langfitt, B. S., Hutchinson, Minnesota.*
Lizzie Langfitt, B. S., 2650 Cottage Grove Ave., Des Moines, Iowa.*
Wm. R. Myers, B. S., 306 North Ave., 66, Los Angeles, California.
E. P. Niles, D. V. M., 2109 North 10th St., Kansas City, Kansas.
M. H. Reynolds, B. S. A., D. V. M., 2145 Knapp St., St. Anthony Park, St. Paul, Minnesota.
O. W. Rich, B. S. A., Kennewick, Washington.
E. S. Richman, B. S. A., M. S. A., Fullerton, California.
H. S. Stewart, B. C. E.
J. J. Streets, D. V. M.
Cora (Wagner) Hunter, B. S.

GRADUATES OF 1887.

*G. Z. Barnes, D. V. M.
Spencer A. Beach, B. S. A., M. S., Station A, Ames, Iowa.
*R. C. Bennett, D. V. M.
Emil Besser, D. V. M., Remington, Indiana.
C. M. Canady, B. C. E., Ambridge, Pennsylvania.
Emma (Casey) Scofield, B. L., Azura, California.
E. J. Christie, B. S., Cedar Rapids, Iowa.*
*S. B. Clark, B. S.
G. H. Colton, B. S. A., 416 18th Ave., North, Seattle, Washington.*
*C. J. Cotey, B. S.
Esther Crawford, B. L., 855 Fairmont St., Cleveland, Ohio.*
C. F. Curtiss, B. S. A., M. S. A., Station A, Ames, Iowa.

A. C. Felt, B. S., Superior, Nebraska.*
C. W. Ferguson, D. V. M., Chappell, Nebraska.*
*W. H. Frater, B. C. E.
G. S. Govier, B. C. E., Argentine, Kansas.
F. H. Graves, D. V. M., Madrid, Iowa.
Norma (Hainer) Beach, B. S., Station A, Ames, Iowa.
Niels E. Hansen, B. S., M. S., 720 6th Ave., Brookings, South Dakota.
L. V. Harpel, B. S., 1229 4th St., Boone, Iowa.
F. W. Hoskins, D. V. M., Beresford, South Dakota.
*W. S. Igo, D. V. M.
E. A. Kirkpatrick, B. S., M. Ph., Fitchburg, Massachusetts.
F. W. Mally, B. S., M. S., Nacogdoches, Texas.
O. E. McCarthy, B. C. E.
A. E. Osborne, B. S., La Porte City, Iowa.
L. G. Patty, D. V. M., 317 North Court St., Carroll, Iowa.
Joseph Paxton, B C. E., 203 West Hallam St., Aspen, Colorado.*
J. A. Perley, B. C. E., Pittsboro, North Carolina.
W. A. Peterson, B. S., 3046 Wentworth Ave., Chicago, Illinois.
G. R. Randall, B. M. E., Warren, Illinois.
G. L. Schermerhorn, B. M. E., Schenectady, New York.*
C. Lyman Spencer, B. S. A., 14 Hogan St., Jacksonville, Florida.
G. W. Sturtz, B. S. A., Plainview, Nebraska.
R. P. Thurtle, D. V. M., Ashawa, Iowa.*
John Tillie, D. V. M., Muscatine, Iowa.*
Olive (Wilson) Curtiss, B. L., Station A, Ames, Iowa.
J. W. Wilson, D. V. M., Traer, Iowa.

GRADUATES OF 1888.

John G. Abraham, B. S., R. F. D. No. 5, Mt. Pleasant, Iowa.
F. W. Ainsworth, D. V. M., Cor. Grotto & Vassar Sts., Pittsburg, Pa.
J. B. Allen, B. S., R. F. D. No. 4, Codaz, Nebraska.*
Clarence A. Baker, B. C. E., 415 E. State St., Centerville, Iowa.*
Chas. L. Bartholomew, B. S., 622 E. 18th St., Minneapolis, Minnesota.*
Ethel Bartholomew, B. L., Chariton, Iowa.*
Scott Bradford, B. S., Storm Lake, Iowa.
A. Brandvig, B. S., 306 Gara St., Ottumwa, Iowa.
G. L. Buffington, D. V. M., Brooklyn, Iowa.
James G. Davidson, B. M. E., 529 W. 60th St., Chicago, Illinois.
F. L. Dobbin, B. S., State Center, Iowa.
*C. A. Finnegan, B. C. E.
Grant Flora, B. C. E., 120 E. Lincoln St., Estherville, Iowa.*
W. N. Gladson, B. M. E., 820 W. Maple St., Fayetteville, Arkansas.
K. H. Granger, B. S., 129 Pleasant St., South Weymouth, Massachusetts.
James E. Gyde, B. S., Wallace, Idaho.
Ella (Henderson) Bartholomew, B. L., 622 E. 18th St., Minneapolis, Minnesota.*
Chas. W. Hunt, B. S., Logan, Iowa.
F. L. Lightner, B. S., Iowa, Louisiana.
Elizabeth (McCuskey) Morrison, B. L., 619 1st Ave., Council Bluffs, Ia.
Geo. L. Meissner, B. S., Crete, Nebraska.
Laura Moulton, B. L., 754 19th St., Des Moines, Iowa.

Emerson K. Paine, D. V. M., Fairbury, Nebraska.
R. C. Sayres, D. V. M., Fairfield, Iowa.
E. A. Sheafe, B. S., 120 South Court St., Ottumwa, Iowa.
B. J. Shelden, B. S., Ames, Iowa.
E. B. Skinner, B. S.
N. Spencer, B. S., 415 Forest Ave., Des Moines, Iowa.
C. E. Tallman, B. S.
Wm. L. Thompson, B. S., Bayard, Iowa.
L. C. Tilden, B. S., Kellogg St., Ames, Iowa.
W. E. Warwick, B. M. E., 51 Oliver St., Whiting, Indiana.
Nannie E. Waugh, B. L., Manchester, Iowa.
Florence (Weatherby) Hainer, B. L., 1002 E. St., Perry, Oklahoma.*
Julia (Wentch) Stanton, B. L., Station A, Ames, Iowa.
W. H. Wright, B. S.
Sherman Yates, B. S., Tipton, Iowa.

GRADUATES OF 1889.

C. A. Ashworth, D. V. M., Valley Junction, Iowa.
James A. Baker, B. S., Muskogee, Indian Territory.*
John E. Banks, B. C. E., 4747 Friendship Ave., Pittsburg, Pennsylvania.
S. W. Beyer, B. S., Ph. D., Station A, Ames, Iowa.
D. B. Bisbee, B. S., M. S., 200 So. Ashland Ave., La Grange, Illinois.*
*A. E. D. Bosquet, D. V. M.
W. B. Budrow, B. S., American Club, Guadalajara, Estd de Jalisco, Mexico.
*H. W. Chamberlain, B. S.
*F. H. Cooley, B. C. E.
Harry B. Day, B. M. E., New Madrid, Missouri.
J. E. Durkee, B. S., Sioux Rapids, Iowa.
H. A. Gossard, B. S., Wooster, Ohio.
A. L. Graham, B. M. E., Care Gulf Refining Co., Port Arthur, Texas.
B. F. Green, B. S., Brookings, South Dakota.
Wm. R. Hensen, B. S., Chinook, Montana.
Nellie Johnson, B. L., Edmonds, Oklahoma.*
James A. Kelsey, B. S., M. S., Dunlap, Iowa.*
C. F. Kimball, B. M. E., 711 7th St., Council Bluffs, Iowa.
Chas. W. Lamborn, B. C. E., 184 La Salle St., Chicago, Illinois.
J. A. Meissner, B. S., Reinbeck, Iowa.
S. W. Morris, B. S., Corning, Iowa.
John McBirney, D. V. M., 1100 Franklin St., Boise, Idaho.
Albert McClelland, B. S., Adelphi, Iowa.
A. A. McLaughlin, B. S., 1060 20th St., Des Moines, Iowa.
Sofus B. Nelson, D. V. M., Pullman, Washington.
Belle (Newell) Patterson, B. L., Riverside, California.
I. A. Nichols, B. S., Iowa Falls, Iowa.
John H. Platt, D. V. M., Montezuma, Iowa.
W. H. Rickard, B. C. E.
P. H. Rolfs, B. S., M. S., Gainesville, Florida.
*John Schoenleber, B. M. E.
Wm. U. Scott, B. S., Clarinda, Iowa.
John A. Shelton, B. S., 81 Hirbour Bldg., Butte, Montana.

Wm. R. Shoemaker, B. S., Menomonee, Michigan.
J. O. Simcoke, D. V. M., Stuart, Iowa.*
Virgil, Snyder, B. S., 214 University Ave., Ithaca, New York.
*Palmer W. Starr, B. C. E.
Chas. H. Stearns, B. S., Santa Rosa, New Mexico.
Jno. S. Stroud, B. S., 622 Grand Ave., Des Moines, Iowa.
M. W. Thornburg, B. S., Redfield, Iowa.
Rosalia Thurlimann, B. L., Carroll, Iowa.
Chas. M. Wade, B. S., 1010 10th St., Sioux City, Iowa.*
Mary (Zimbleman) Otis, B. L., 322 Story St., Boone, Iowa.

GRADUATES OF 1890.

Nettie Bannister, B. L., Cherokee, Iowa.*
J. A. Bishop, B. S., New Hampton, Iowa.
W. E. Bolles, B. C. E., 56 Johnson Ave., Richmond Hill, New York City, New York.
John A. Bramhall, B. M. E., 317 Court Ave., Des Moines, Iowa.
Meyer Brandvig, B. S., M. Ph., Spencer, Nebraska.
J. S. Chamberlain, B. S., M. S., 3020 Irving Place, N. W., Washington, D. C.
Herbert E. Crosby, B. S., 4th St., Montevideo, Minnesota.*
Charles D. Davidson, B. M. E., Whiting, Indiana.
W. C. Dewell, B. S., Magnolia, Iowa.
Edward N. Eaton, B. S., 1628 315 Dearborn St., Chicago, Illinois.*
Mary (Fellows) Weare, B. L., 5121 25th St., Morton Park, Illinois.
Q. C. Fuller, D. V. M., Milford, Iowa.
*Belle (Gaston) James, B. L.
T. A. Geddes, D. V. M., Care U. S. Consul, London, England.*
J. M. Graham, B. S., Audubon, Iowa.
*May Hardy, B. L.
Spencer Haven, B. S., Hudson, Wisconsin.
Eugene Henely, B. S., 615 Broad St., Grinnell, Iowa.
T. S. Howard, B. S., 3624 3rd St., Des Moines, Iowa.*
Thos. S. Kerr, B. S., 128 Walnut Ave., Chicago, Illinois.
E. A. Kreger, B. S., 209 A. Augur Ave., Ft. Leavenworth, Kansas.
Alice Mann, B. S., Algona, Iowa.
Bertha Mann, B. S., Bottiman, North Dakota.
Jas. J. McLaughlin, D. V. M., Blue Earth, Minnesota.
Ada (Mills) Dewell, B. L., Magnolia, Iowa.
J. C. Norton, D. V. M., 344 N. 2d Ave., Phoenix, Arizona.
Robt. W. Olmsted, B. S., 929 21st St., Rock Island, Illinois.
*Violet U. Quint, B. L.
Maria M. Roberts, B. L., Station A, Ames, Iowa.
Geo. H. Schulte, B. S., Elkader, Iowa.
W. H. Shaul, B. S., 507 Equitable Bldg., Des Moines, Iowa.*
Kate (Stevens) Harpel, B. L., 812 8th St., Boone, Iowa.
Jno. T. Stinson, B. S., Mountain Grove, Missouri.*
Rodney B. Swift, B. S., 4837 Madison Ave., Chicago, Illinois.
Edward Thurlimann, B. S., Carroll, Iowa.
Leo Thurlimann, B. S., M. S., 654 La Salle Ave., Chicago, Illinois.
Cora (Van Velsor) Lambert, B. L., 6435 Jackson Ave., Chicago, Illlinois.
A. R. Williams, D. V. M., Newport, Washington.

GRADUATES OF 1891.

Geo. S. Angus, B. C. E., 1647 Thorn St., Chicago Heights, Illinois.
Wm. H. Austin, D. V. M., Laurel, Iowa.
Chas. A. Ballreich, B. S., 328 Michigan St., Pueblo, Colorado.
Sarah T. Barrows, B. L., 1478 Pennsylvania Ave., Columbus, Ohio.
Frank J. Brown, B. C. E., Pipestone, Minnesota.*
Donald M. Carter, B. M. E., 1410 Marquette Bldg., Chicago, Illinois.
Geo. L. Christy, B. C. E., 128 W. 42d St., New York City, New York.
*Clinton C. Clarke, B. S.
Mae (Cottrell) Woods, B. L., 321 Western Ave., Waterloo, Iowa.
Robert M. Dyer, B. M. E., 95 Yesler Way, Seattle, Washington.
Wm. A. Heck, D. V. M., West Liberty, Iowa.
Wm. H. Heileman, B. S., M. S., 2530 Regent St., Berkley, California.
Rollin E. Hinds, B. C. E., 206 West Maple Ave., Ottumwa, Iowa.
R. F. Hodson, B. S., Prairie City, Iowa.
Edwin P. Hudson, B. S., 1614 E. 9th St., Des Moines, Iowa.
Thos. B. Hutton, B. S., 1312 Court St., Le Mars, Iowa.
Wm. H. Jackson, B. C. E., 1351 12th St., Des Moines, Iowa.
Chas. W. Johnson, B. S., Still College, Des Moines, Iowa.
W. Clyde Jones, B. M. E., 5540 Monroe Ave., Chicago, Illinois.
Edwin S. King, B. S., R. F. D. No. 1, Grundy Center, Iowa.
Eleanor (King) Moss, B. L., 38th & University Ave., Des Moines, Iowa.
John H. Moore, B. C. E., 814 Foster St., Evanston, Illinois.
Berkley N. Moss, B. C. E., C. E., 38th & University Ave., Des Moines, Ia.
W. A. McClanahan, D. V. M., Redding, Iowa.
L. D. McNaughton, B. M. E., 510 W. Broadway, Eagle Grove, Iowa.*
Mary (Nichols) Cox, B. L., Chappaqua, New York.
E. C. Oggel, B. S., 125 North Flower St., Los Angeles, California.*
J. F. Schulte, B. S., Victor, Iowa.
B. F. Shaum, B. C. E., Columbus Junction, Iowa.
John H. Shepperd, B. Ag., M. S. A., 1018 7th St., North, Fargo, N. D.
F. A. Sirrine, B. S., M. S., 79 Sound Ave., Riverhead, New York.
Nels Sorenson, D. V. M., Indianapolis, Indiana.
John E. Spaan, B. S., 918 Law Bldg., Indianapolis, Indiana.
Grant F. Starkey, D. V. M., Jordan, Iowa.*
Walter D. Steele, B. M. E., 42 West Jackson Blvd., Chicago, Ill.
Willis C. Swift, B. M. E., 28 Park Ave., Hinsdale, Illinois.
D. A. Thornburg, B. S., 1804 Rucker Ave., Everett, Washington.
Samuel Whitbeck, D. V. M., Burr Oak, Iowa.
Peter M. Wilson, D. V. M., Traer, Iowa.

GRADUATES OF 1892.

Chas. B. Adams, D. V. M.
Geo. B. Ashford, B. C. E., Nome, Alaska.*
Alice Beach, B. S., M. S., 2636 Charming Way, Berkley, California.
R. B. Benjamin, B. S., 1992 Van Buren St., Chicago, Illinois.
Estella (Blaine) Spence, B. L., Ames, Iowa.
Emma (Boyd) Jones, B. L., 5540 Monroe Ave., Chicago, Illinois.
Eugene G. Brown, B. S., E. State St., Mason City, Iowa.*
Geo. W. Brown, B. C. E., 210 Linn St., Boone, Iowa.*

Inez J. Christie, B. L., Marion, Iowa.
E. E. Clinton, B. C. E.
W. Ross Cooper, D. V. M., 3228 Garfield Ave., Kansas City, Missouri.
Edgar C. Corry, B. S., 523 Franklin Ave., Des Moines, Iowa.
Genevieve Culver, B. L., Audubon, Iowa.*
Homer Davis, D. V. M.
Anna (Dean) Blair, B. L., 2923 Logan Ave., East Des Moines, Iowa.
Chas. C. Deering, B. S., 817 8th St., Boone, Iowa.
C. U. Emery, B. C. E., Fairfield, Iowa.*
G. S. Foster, B. C. E., Omaha, Nebraska.*
Kittie B. Freed, B. L., Onandoga St., Ames, Iowa.
Ellis T. Gilbert, B. S., Oklahoma City, Oklahoma.
Eugene B. Henry, B. S.
Wm. C. Hicks, B. S., Ida Grove, Iowa.
Edwin D. Jones, B. C. E.
E. E. Kaufmann, B. Ag., Fargo, North Dakota.
Arthur Knapp, B. S., Pujo St., Lake Charles, Louisiana.
F. A. Littell, B. C. E., Audubon, Iowa.*
C. W. Mally, B. S., M. S., Currie St., Graham's Town, Cape Colony, South Africa.
Jessie (Maxwell) Freeland, B. L., 121 B St., Salt Lake City, Utah.
Francis L. Meredith, B. S., 1445 21st St., Des Moines, Iowa.
W. P. Milburn, B. M. E.
Gordon P. Miller, B. S., R. F. D. No. 2, Des Moines, Iowa.
R. C. Molison, D. V. M., Emmetsburg, Iowa.
Jennie (Morrison) Beyer, B. L., Station A, Ames, Iowa.
Fred R. Muhs, B. C. E., 2030 Scott St., San Francisco, California.
Clarice (McCarthy) McNaughton, B. L., 510 W. Broadway, Eagle Grove, Iowa.*
Wilton McCarthy, D. V. M., 205 Equitable, Des Moines, Iowa.
E. S. McCord, D. V. M., Delmar, Iowa.
Fred S. Phelps, B. S., Gournee, Illinois.*
Kate (Porter) Gess, B. L., Saint Anthony, Idaho.*
*Henry Replogle, D. V. M.
J. A. Replogle, D. V. M., Udell, Iowa.
J. A. Rolfs, B. S., Aplington, Iowa.
T. T. Rutledge, B. Ag.
J. F. Saylor, B. S., 517 Washington St., Spokane, Washington.
Robt. J. Sloan, B. S., 313 Kemper Bldg., Kansas City, Missouri.*
Louis B. Spinney, B. M. E., Station A, Ames, Iowa.
Fred C. Stewart, B. S., M. S., 48 Brook St., Geneva, New York.
Arthur C. Stokes, B. S., 400 Bee Bldg., Omaha, Nebraska.
*C. E. Swenson, B. S.
Walter Trotter, B. M. E., Montgomery, West Virginia.*
C. C. Van Houten, B. Ag., Pawnee, Oklahoma.
H. C. Wallace, B. Ag., 11th & Walnut St., Des Moines, Iowa.
G. S. Waterhouse, D. V. M., Charter Oak, Iowa.
Hugh H. West, D. V. M., Spurling Bldg., Elgin, Illinois.
Elmina Wilson, B. C. E., C. E., 524 W. 151st St., New York City, N. Y.
Flora H. Wilson, B. L., Washington, D. C.
Vincent Zmunt, B. S., Iowa City, Iowa.

GRADUATES OF 1893.

Frank W. Austin, B. C. E.
Bert B. Benjamin, B. M. E., 631 Washington Blvd., Chicago, Illinois.
E. C. Boutelle, B. M. E., 1243 Winona Ave., Chicago, Illinois.
Carlton E. Brown, B. E. E., 333 Lawrence Ave., Chicago, Illinois.
Alene (Chestek) Stewart, B. L., 48 Brook St., Geneva, New York.
D. G. Cooper, D. V. M., 910 North 23rd St., South Omaha, Nebraska.
Virginia Corbett, B. L., 428 W. Laurel St., Ft. Collins, Colorado.
F. E. Davidson, B. C. E., 7406 Kimbark Ave., Chicago, Illinois.
C. M. Day, D. V. M.
Earl Douglass, B. S., Ft. Collins, Colorado.*
Jennie Downing, B. L., Brookings, South Dakota.*
Edwin M. Duroe, B. S., Jeffers, Minnesota.
R. H. Fairfield, B. Ag., Gardena, North Dakota.
Kate M. Farr, B. L., Osborn, Missouri.
E. E. Faville, B. Ag., M. S. A., Care Successful Farming, Des Moines, Ia.
James H. Gasson, D. V. M., Council Bluffs, Iowa.
Margaret (Gifford) Hodson, B. L., Prairie City, Iowa.
E. F. Green, B. S., De Smet, South Dakota.
I. L. Guernsey, B. C. E., 228 Lombardy St., Corydon, Iowa.
W. E. Harriman, B. S., Ames, Iowa.
C. E. Hart, B. M. E.
W. E. Herring, B. C. E., Washington, D. C.*
Royal T. Hodgkins, B. M. E., 357 Sterling Place, Brooklyn, N. Y.
Jessie B. Hudson, B. S., B. L., 207 N. Capitol St., Iowa City, Iowa.
Geo. W. Hursey, B. S., Upland, California.*
John A. James, B. S., 1006 Carleton Bldg., St. Louis, Missouri.
James F. Jones, B. S., Wickenburg, Arizona.
Edward J. Kearney, B. M. E., 395 2d Ave., Wauwatosa, Wisconsin.
Fred L. Kent, B. Ag., 3rd & Jefferson Sts., Corvallis, Oregon.
G. A. Ketterer, B. S., Fairbanks, Alaska.
G. A. Kuehl, B. C. E., 731 Central Ave., Wilmete, Illinois.
Willis B. Lincoln, D. V. M., 925 Fatherland St., Nashville, Tennessee.
Willard C. Lusk, B. S., Yankton, South Dakota.
John A. Maguire, B. S., 55-56 Burr Block, Lincoln, Nebraska.
Philip J. Maguire, B. S., 100 Washington St., Chicago, Illinois.
Berthold W. Manville, B. E. E., Ulysses, Nebraska.*
Ira J. Merrill, B. M. E.
Charles L. Miles, B. S., Charles City, Iowa.*
Grace (Mills) Haugeberg, B. L., Clinton, Missouri.
Ella (Morton) Kearney, B. L., 395 2d Ave., Wauwatosa, Wisconsin.
C. K. Munns, B. E. E., M. A. in E. E., Corning, Iowa.
C. A. McCall, D. V. M., Dodge City, Kansas.*
*F. B. McCall, D. V. M.
G. E. McKim, B. C. E., 3918 E. 19th St., Kansas City, Missouri.*
Henry N. Nichols, B. S., 2 East Main St., Marshalltown, Iowa.
Florence (Parkhill) Kuehl, B. S., B. L., 731 Central Ave., Wilmete, Ill.
Don W. Patton, D. V. M., Union Stock Yards, Chicago, Illinois.
Lavenia Price, B. S., 1602 Locust St., Des Moines, Iowa.*
Helen (Radnich) Tiara, B. L., R. F. D., Polk City, Iowa.
Roscoe G. Rice, B. E. E.

Mary C. Rolfs, B. L., Le Claire, Iowa.
W. G. Rundall, B. S., 1251 Monroe St., Chicago, Illinois.
Edwin E. Smith, B. S., Sioux Rapids, Iowa.*
*Evelyn E. Starr, B. S., B. L.
F. S. Tufts, D. V. M., 7744 Lowe Ave., Chicago, Illinois.
Bell (Wentch) Wood, B. S., R. F. D. No. 2, Traer, Iowa.
Brinton F. White, D. V. M., Hampton, Iowa.
Vinnie (Williams) Grattan, B. L., Broomfield, Colorado.

GRADUATES OF 1894.

W. J. Ballard, B. S.
C. Pearl Bigelow, B. L., Puyallup, Washington.
O. N. Bossingham, D. V. M., Ringsted, Iowa.
H. S. Bowen, B. M. E., 244 E. 65th St., Chicago, Illinois.*
S. D. Bowie, B. Ag.
Blanche (Bradley) White, B. L., Hampton, Iowa.
Wm. J. Burdess, B. M. E., Oskaloosa, Iowa.
Frank H. Campbell, B. C. E., 1528 Pruitt St., Fort Worth, Texas.
Iowa Campbell, B. L., 810 Taylor St., Fort Worth, Texas.
W. Lee Campbell, B. C. E., Van Buren & Morgan Sts., Chicago, Ill.
W. G. Carlson, B. S.
Geo. W. Carver, B. Ag., Tuskegee, Alabama.
Ida (Clark) Campbell, B. L., Clear Lake, Iowa.
W. R. Cooper, B. S., Newton, Iowa.
Louis B. Craig, B. M. E., 764 Esplanade Ave., Davenport, Iowa.
Ella (Curtiss) Derr, B. L., Independence, Iowa.
Fannie (Curtiss) Craig, B. L., 764 Esplanade Ave., Davenport, Iowa.
Edward C. Dickinson, B. C. E., 111 James St., Geneva, Illinois.
S. R. Fitz, B. S., Rockford, Iowa.*
Annie W. Fleming, B. S., Station A, Ames, Iowa.
W. H. Gemmill, B. S., Dallas Center, Iowa.
Anna Georgen, B. L., Worthington, Iowa.*
Emil Hansen, B. M. E.
Alvin W. Hoyt, B. S., 1432 5th Ave., Cedar Rapids, Iowa.
Winifred (Hunter) Evans, B. L., New Sharon, Iowa.
B. D. Knickerbocker, B. E. E.
H. R. Kreger, B. S.
W. G. Langfitt, B. M. E., Hutchinson, Minnesota.
C. G. Lee, B. S., Ames, Iowa.
Chas. S. Lincoln, B. C. E., 2d Infantry, U S. A., Zamboanga, Mindanao, Philippine Islands.
Scott W. Linn, B. C. E., 375 Scott St., Milwaukee, Wisconsin.
Wm. L. Meinzer, B. S., Clark, South Dakota.
John Meissner, B. S., Reinbeck, Iowa.
J. C. Miller, B. C. E., Page, North Dakota.
H. G. Moore, D. V. M.
Bertha (Mosier) Hays, B. L., Armstrong, Iowa.*
W. A. Murphy, B. C. E., 1341 So. 19th St., St. Joseph, Missouri.
Alex McKinnon, B. C. E., Yalesville, Connecticut.
E. M. McLaughlin, B. E. E., Newton, Iowa.
*Emma (Pammel) Hansen, B. L., M. S.

Nora (Person) Sanborn, B. L., Spokane, Washington.
A. A. Peters, D. V. M., Martinsburg, Iowa.
Albert M. Price, B. M. E., 636 East View, Elgin, Illinois.
C. E. Read, B. Ag., New Virginia, Iowa.
C. D. Reed, B. Ag., M. S. A., Local Office, Weather Bureau, Sioux City, Ia.
H. I. Rutledge, B. M. E., Tiffin, Iowa.
Edith (Ryan) Faville, B. L., Des Moines, Iowa.
W. L. Ryan, B. S., 1141 19th St., Des Moines, Iowa.*
G. T. Schlenker, B. S., Berwick, Iowa.
A. H. Seaver, B. C. E., R. R. No. 1, Baldwin, Iowa.*
Harry W. Shanks, D. V. M., Millersburg, Iowa.*
Hala (Silliman) Munns, B. L., Corning, Iowa.
Emma F. Sirrine, B. S., M. S., 1109 13th St., N. W., Washington, D. C.
*H. J. Stevens, D. V. M.
A. W. Stuntz, B. E. E., 7841 Mulford St., Pittsburg, Pennsylvania.
Clarence Van Epps, B. S., 430 E. Jefferson St., Iowa City, Iowa.
Arthur R. Wake, D. V. M.
Carter B. Weaver, B. S.
C. O. Williamson, B. E. E., Knoxville, Iowa.*
Alda H. Wilson, B. C. E., 524 W. 151st St., New York City, New York.
Elsworth Wilson, D. V. M., Box 1017, Douglass, Arizona.
Elvin J. Wilson, D. V. M.
James T. Young, B. M. E., Hydro, Oklahoma.

GRADUATES OF 1895.

Arthur J. Ashby, B. E. E., 530 Harrison Ave., Canon City, Colorado.
Florence (Baker) McManus, B. S., 1110 E. Pierce St., Council Bluffs, Ia.
Elmer D. Ball, B. S., M. S., 351 N. 4th St., East, Logan, Utah.
A. J. Banks, B. M. E., Montour, Iowa.*
A. W. Bitting, D. V. M., B. S., 320 State St., La Fayette, Indiana.
Richard J. Blanche, D. V. M., 1009 7th St., East Las Vegas, New Mexico.
C. E. Brockhausen, B. M. E., 1208 Unity Bldg., Chicago, Illinois.
I. C. Brownlie, B. S., 403-4 California Bldg., Denver, Colorado.
Charles R. Cave, B. M. E., Dyersville, Iowa.
John W. Crawford, B. S., Fort Morgan, Colorado.
Effie (Curtiss) Campbell, B. L., 1528 Pruitt St., Fort Worth, Texas.
J. G. Danielson, B. Ag., R. F. D. No. 3, Gowrie, Iowa.
J. R. Davidson, B. S., 142 W. 65th St., New York City, New York.
E. T. Davison, D. V. M., B. A. I., Washington, D. C.
Ruth (Duncan) Tilden, B. L., Kellogg St., Ames, Iowa.
C. R. Duroe, B. M. E., Jeffers, Minnesota.
W. J. Eck, B. M. E., 215 Jackson Blvd., Chicago, Illinois.
C. H. Eckles, B. Ag., M. S. A., University, Columbia, Missouri.
A. H. Foster, B. M. E., 416 3rd St., Red Wing, Minnesota.
Jerome B. Frisbee, B. Ag., The Wellington, Des Moines, Iowa.
Burt German, B. M. E., Fremont, Ohio.
Clarence Goddard, B. C. E.
W. E. Gossard, B. S., Webster City, Iowa.
Geo. D. Gunn, B. S., Lexington, Nebraska.*
Geo. W. Harden, B. S., White Sulphur Springs, Montana.
A. C. Helmer, B. M. E., 1031 Brady St., Davenport, Iowa.*

D. M. Hosford, B. M. E., M. E., 2202 East 93rd St., Cleveland, Ohio.
N. C. Hurst, B. M. E., 58 Williamson Ave., Youngston, Ohio.
Chas. S. Hutchison, B. S., M. S., Harrison, Arkansas.
*Ira B. Johnson, B. S.
Raymond Johnson, D. V. M., 407 South C. St., Arkansas City, Kansas.*
Fred J. Lazell, B. S., 1557 Washington Ave., Cedar Rapids, Iowa.
C. C. Lewis, B. M. E., Carlsbad, New Mexico.*
H. T. Lewis, B. M. E.
J. W. Lewis, B. C. E., Carlsbad, New Mexico.*
L. L. Lewis, D. V. M., Stillwater, Oklahoma.
Gilbert W. Louthan, B. Ag., M. S. A., Cornell, Iowa.*
Fred R. Lyford, B. C. E., Beaufort, Missouri.
Nellie F. Maguire, B. L., 130 Farrington Ave., St. Paul, Minnesota.*
E. A. Mellinger, B. M. E., Automatic Electric Co., Chicago, Illinois.*
J. H. Meyers, B. Ag.
Lillian (Mills) Hurst, B. L., 58 Williamson Ave., Youngston, Ohio.
Jos. A. Moore, B. C. E., 4621 Champlin Ave., Chicago, Illinois.*
W. R. McCready, B. C. E., 1027 Morse Ave., Chicago, Illinois.
Mary (McNeill) Aten, B. L., Garden Grove, Iowa.
*Hulda M. Nelson, B. S.
Wm. J. Oliver, B. S.
M. J. Orr, B. M. E., 1812 Douglass St., Sioux City, Iowa.*
Mabel Ruth (Owens) Wilcox, B. L., 213 Maple Ave., Takoma Park Station, Washington D. C.
Lola A. Placeway, B. S., Station A, Ames, Iowa.
*John M. Preston, B. Ag.
Erwin E. Reed, B. S., Monticello, Iowa.
Thomas L. Rice, D. V. M., 468 E. 48th St., Chicago, Illinois.*
W. D. Rich, B. S., 519 State St., Ames, Iowa.
Albert Richmond, B. C. E., Edmunds, North Dakota.*
F. S. Roop, D. V. M., Blacksbury, Virginia.
Ethel B. Rundall, B. S., Rodman, Iowa.
*Geo. D. Sabin, B. M. E.
John C. Sample, B. C. E., 417 Amity St., Flushing, New York.*
Roger S. Sanborn, B. S., Public Schools, Spokane, Washington.
Frank H. Schleiter, B. M. E., Galva, Iowa.
J. I. Schulte, B. Ag., R. F. D. No. 4, Washington, D. C.
John M. Sokol, B. S., Spencer, Iowa.*
W. J. Thomas, B. C. E., 148 W. 128th St., New York, New York.*
R. H. Walker, B. M. E.
Etta J. Whipple, B. S., 506 Lee Ave., Ottumwa, Iowa.*
Chas. A. Wilson, B. Ag., 6401 Parnell Ave., Chicago, Illinois.
E. R. Wilson, B. Ag., Cheney, Washington.*
O. P. Woodburn, B. M. E., 817 Boulevard, Houston Heights, Texas.
John I. Wright, B. Ag.
Laura (Wyatt) Cutler, B. S., Dunlap, Iowa.

GRADUATES OF 1896.

Mildred (Anderson) Norton, B. L., 1062 Laguna Ave., Los Angeles, Cal.
Carleton R. Ball, B. S., M. S., 117 W. St., N. W., Washington, D. C.
Hazel (Beardshear) Chambers, B. L., Huggins, Colorado.

J. F. Blakemore, B. C. E., Room 603 Pacific Block, Seattle, Wash.
E. N. Bonnell, B. S., 1989 Selby Ave., St. Paul, Minnesota.
W. A. Bryan, B. S., Bishop Museum, Honolulu, Hawaiian Islands.
Agnes M. Cole, B. S., Station A, Ames, Iowa.
*Robert Combs, B. S., M. S.
B. G. Dunham, B. M. E., 1595 Main St., E., Rochester, New York.
Raymond Eckles, B. Ag., Aplington, Iowa.
J. J. Edgerton, B. Ag., Farwell Blvd., Channing, Texas.
Jas. W. Elliott, B. C. E.
*Nettie (Fibbs) Zorn, B. C. E.
Edith (Foster) Orr, B. S., 1329 Jennings St., Sioux City, Iowa.*
Ella (French) Robinson, B. S., Hampton, Iowa.
Frank C. French, B. C. E., Care M. A. Moulton, Chief Railway Expert, Manila, Philippine Islands.
L. M. Goodman, B. M. E., Britt, Iowa.
Maude Hursey, B. L., Buffalo, Wyoming.
Chas. P. Johnson, B. S., 715 Foster St., Evanston, Illinois.
R. R. Landon, B. M. E., Manila, Philippine Islands.
C. F. Langlass, B. M. E., 271 Parker St., Newark, New Jersey.
Myrtle (Little) Fowler, B. L., Ames, Iowa.
Nora B. Lockwood, B. S., 802 East 9th St., Sheldon, Iowa.
E. C. Macy, B. C. E., Care Stone & Webster Co., Galveston, Texas.
Mary Maguire, B. S., 402 East 7th Ave., Mitchell, South Dakota.
T. J. Mahoney, B. S., 1221 Greene St., Boone, Iowa.
*Watson Mason, B. M. E..
Fred Matthews, B. S., Scranton, Iowa.
Ira J. Meade, B. Ag., M. Ag., R. F. D. No. 2, Mitchellville, Iowa.
Claude C. Mills, B. S., Westfield, Wisconsin.*
S. B. Mills, B. Ag., R. F. D. No. 3, Ames, Iowa.
Stella (McLain) Lawrence, B. L., 1303 Carroll St., Boone, Iowa.
Carl H. McLean, B. Ag., M. Ph.
C. O. Pool, B. S., R. F. D. No. 1, Tampa, Oklahoma.
Lillian Porterfield, B. S., Watertown, South Dakota.
Herbert L. Preston, B. S., Brocksburg, Nebraska.*
Ivan B. Roscoe, B. S., 320 South 11th St., Minneapolis, Minnesota.
Rose (Rummel) Smith, B. S., 914 Kellogg St., Ames, Iowa.
E. A. Sherman, B. S., South 3d St., Missoula, Montana.
C. H. Speers, B. M. E., Pleasant Hill, Missouri.*
G. L. Steelsmith, B. S., Fairbanks, Alaska.*
Henry C. Taylor, B. Ag., M. Ag., 222 Irving St., Madison, Wisconsin.
R. G. Weaver, B. S., 420 Jeff St., Portland, Oregon.
W. W. Wentch, B. M. E., Traer, Iowa.
B. W. Wilson, B. Ag., 231 Penn Block, Butte, Montana.
James W. Wilson, B. Ag., M. S. A., Brookings, South Dakota.
A. L. Zinser, B. S., Sioux Rapids, Iowa.*
G. W. Zorn, B. C. E., Cody, Wyoming.

GRADUATES OF 1897.

Mary (Barger) Crossley, B. S., R. F. D. No. 4, Ames, Iowa.
C. A. Bergeman, B. M. E.
E. C. Bierbaum, B. S.

F. W. Bouska, B. Ag., M. S. A., Station A, Ames, Iowa.
Guy S. Brewer, B. S., 1453 East Grand Ave., Des Moines, Iowa.
Andrew Brown, B. S.
James R. Burnip, B. S., Montevideo, Minnesota.
O. R. Cole, B. S. in E. E., 533 A Queen Anne Ave., Seattle, Washington.
Robt. A. Craig, D. V. M., 621 Owen St., Lafayette, Indiana.*
Philip E. Damon, B. Ag., Boone, Iowa.
Geo. G. Dana, B. M. E., 2311 Washington Ave., Racine, Wisconsin.
Ole Davidson, B. C. E., Clarion, Iowa.
Gwendolen (Doxsee) Reed, B. L., Monticello, Iowa.
L. A. Duroe, B. S., Jeffers, Minnesota.
L. Mae (Fellows) Banks, B. L., Montour, Iowa.*
W. C. Garberson, B. S., Sibley, Iowa.
Otto Gersbach, B. C. E., La Salle St., Station, Chicago, Illinois.
Blanche (Greeley) Wilson, B. L., 6401 Parnell Ave., Chicago, Illinois.
C. A. Hartman, B. S., 723 E. 12th St., Des Moines, Iowa.
Glen D. Heald, B. M. E., 13th & Arch Sts., Philadelphia, Pennsylvania.
Margaret Jones, B. S., Ames, Iowa.
Ward M. Jones, B. C. E., Station A, Ames, Iowa.
W. S. Joseph, B. C. E., 403 N. Maple St., Creston, Iowa.*
Robt. E. King, B. M. E., 1237 Ainslie St., Chicago, Illinois.
Helen (Knapp) Fay, B. L., 822 7th St., Des Moines, Iowa.
E. P. Kribbs, B. Min. E., Clarissa, Minnesota.*
Chas. E. LeBuhn, B. S., 626 W. 15th St., Davenport, Iowa.*
Frank W. Linebaugh, B. M. E., Ames, Iowa.
T. W. Mast, B. Ag., Forest Home, Winthrop, Arkansas.
Elizabeth (Morphy) Tilden, B. L., Ames, Iowa.
Joseph Morrison, B. C. E., 308 Dousman Ave., Escanaba, Michigan.
Frank McConnon, B. S., 1019 8th St., Washington, D. C.
Geo. B. McWilliams, B. C. E., 227 Independence Ave., Waterloo, Iowa.
Wilmon Newell, B. S., M. S., State University, Baton Rouge, Louisiana.
E. A. Pattengill, B. S., Station A, Ames, Iowa.
Geo. W. Patterson, B. S. in E. E.
Allan Rae, B. M. E., Lincoln and Forrest Aves., Grossdale, Illinois.*
Edith Redmond, B. L., Hedrick, Iowa.*
Emerson G. Reed, B. M. E., 104 Colonial Ave., Wilkinsburg, Pa.*
E. F. Rhodenbaugh, B. S., 1519 Washington St., Boise, Idaho.
Ambrose C. Rice, B. S., Lower Kemendine Road, Rangoon, Burma, Asia.
Moss F. Rolfe, B. S., Mountain Grove, Missouri.
Margaret Rutherford, B. S., Algona, Iowa.
A. F. Sample, B. Ag., Keosauqua, Iowa.
Herman T. Schmidt, B. M. E., 2131 West 3d St., Davenport, Iowa.*
Frank B. Spencer, B. S. in E. E., 125 Monroe St., Chicago, Illinois.
Geo. L. Sterns, B. S. in E. E., 406 Vine St., Albert Lea, Minnesota.
Olive (Stevens) Damon, B. L., Boone, Iowa.
Clarence E. Tanton, B. S., Park City, Utah.
*Hannah (Thomas) Johnston, B. S.
Minta (Tilden) Macy, B. L., Galveston, Texas.
E. R. Townsend, B. M. E., 125 Monroe St., Chicago, Illinois.
John J. Vernon, B. Ag., Agricultural College, New Mexico.
Ida L. Watkins, B. L., Grundy Center, Iowa.*

Jasper Wilson, B. Ag., 1022 Vermont Ave., Washington, D. C.
Lawrence Winne, B. S., Humboldt, Iowa.

GRADUATES OF 1898.

M. C. Adamson, B. S.
Ralph W. Barclay, B. Ag., Mason City, Iowa.
Jennie (Barger) McCrary, B L., Nevada, Iowa.
Esther (Beatty) Ketchum, B. L., 1085 12th St., Boulder, Colorado.
J. N. Bonnell, B. S. in E. E., 122 South Madison St., Allentown, Pa.
Leora Mae Bonwell, B. S., Ross, Iowa.
Otis Boyd, B. S., Roland, Iowa.
Harvey Bozarth, B. M. E., 36 Garden Place, Brooklyn, New York.
C. J. Bristol, B. M. E., Monarch Machine Co., Des Moines, Iowa.
Harry F. Brown, B. S., 1205 Kellogg St., Ames, Iowa.
J. C. Brown, B. Ag., Agricultural Hall, Madison, Wisconsin.
Olive Z. Brown, B. L., 401 North 24th St., South Omaha, Nebraska.
Ena (Burnham) Eckles, B. L., Aplington, Iowa.
Glenn C. Clark, B. S., Rose, Kansas.
Margaret (Cooper) Forde, B. L., 4th & Huron Sts., Missouri Valley, Ia.
John Craig, B. Ag., 3 East Ave., Ithaca, New York.
W. J. Devine, B. S. in E. E., 913 S. 4th St., Clinton, Iowa.
Gordon F. Dodge, B. M. E., 157 North State St., Salt Lake City, Utah.
Harry E. Dyer, B. S., 210 3d Ave., North, Nashville, Tenn.
W. C. Edson, B. S., Storm Lake, Iowa.
Ada (Ellis) Johnson, B. L., 715 Foster St., Evanston, Illinois.
Sadie Ellis, B. L., 30 Koun Mita, Shiba, Tokio, Japan.
Harry J. Evans, B. S., Strawberry Point, Iowa.
F. F. Faville, B. S., Storm Lake, Iowa.
Oliver J. Fay, B. S., Equitable Bldg., Des Moines, Iowa.
Elmer Franklin, B. S., 207 W. 8th St., Kansas City, Missouri.
Orville S. Franklin, B. S., 406 Youngerman Block, Des Moines, Iowa.
James Galloway, B. M. E., R. F. D. No. 2, Keokuk, Iowa.
Thomas Galloway, B. M. E., 1214 10 St., Des Moines, Iowa.
Theron S. Grant, B. S., Lusk, Wyoming.
H. N. Grettenberg, B. Ag., 402 S. 7th St., Pekin, Illinois.*
J. H. Grisdale, B. Ag., Central Experiment Farm, Ottawa, Canada.
Wm. H. Grover, B. S. in E. E., Station A, Ames, Iowa.
M. J. Hammer, B. C. E., 4407 N. Ashland Ave., Chicago, Illinois.
C. J. Heckard, D. V. M., Wheatland, Iowa.
O. J. Henderson, B. S., Webster City, Iowa.
B. H. Hibbard, B. Ag., Station A, Ames, Iowa.
E. R. Hodson, B. S., M. S., Forest Service, Washington, D. C.
*Ralph H. Hollenbeak, B. C. E.
Sarah (Hook) Passig, B. L., Humboldt, Iowa.
M. R. Hull, B. S. in E. E.
E. M. Johnson, B. S., Station A, Ames, Iowa.
Irene (Jones) Bonnell, B. S., 122 South Madison St., Allentown, Pa.
*Axel Kolling, D. V. M.
J. C. Kyle, B. S. in E. E., 414 Forest Road, Roland Park, Maryland.
Kate (La Rue) Rodgers, B. L., Van Horn, Iowa.
Fred N. Lewis, B. C. E., 107 Cecil St., S. E., Minneapolis, Minnesota.

Edward E. Little, B. Ag., M. S. A., Ames, Iowa.
John B. Love, B. Ag., 333 North St., Ballard, Washington.*
Fred R. Lowery, B. S. in E. E., Libby, Montana.
W. H. Meek, B. S., Howard, South Dakota.
Royal Meeker, B. S., 61 Wiggins St., Princeton, New Jersey.
Roger C. Mills, B. Ag., Benton Harbor, Michigan.
David W. Morgan, B. S. in E. E., Carlsbad, New Mexico.
C. J. McCusker, B. S., 593 Davis St., Portland, Oregon.
W. G. McKay, B. S., 611 South Clinton St., Iowa City, Iowa.
Pearl (McWilliams) Stetzel, B. S., 211 Irving St., Waterloo, Iowa.
Geo. E. Nesom, D. V. M., Manila, P. I.
Jessie J. Parker, B. S., Ames, Iowa.
*A. J. Perrin, B. C. E.
Eugene D. Perry, B. S., 217 Youngerman Block, Des Moines, Iowa.
Marius J. Pos, B. M. E., 6327 Jefferson Ave., Chicago, Illinois.
E. G. Preston, B. Ag., Battle Creek, Iowa.*
Elizabeth (Read) Cohn, B. L., 529 West 3d St., Los Angeles, California.
Alice E. Reed, B. L., Charlevoix, Michigan.
O. W. Rowe, D. V. M., 320 Blondeau St., Keokuk, Iowa.
Stella Russell, B. L., Storm Lake, Iowa.
J. Harry Scurr, B. Ag., Gilman, Iowa.
H. W Skinner, B. M. E., 510 South 7th Ave., Maywood, Illinois.
Dollie (Snelson) Hogan, B. S., Massena, Iowa.
Edwin M. Stanton, B. S., Augustana Hospital, Chicago, Illinois.
F. C. Stetzel, B. S., 211 Irving St., Waterloo, Iowa.
Carol T. Stevens, B. S., 169 Centre Ave., New Rochelle, New York.
Mabelle (Stewart) Wright, B. L., 801 E. 35th St., Los Angeles, Calif.
Simon W. Tarr, B. C. E., 610 Wolvin Bldg., Duluth, Minnesota.
Margaret Taylor, B. L., 707 S. 10th St., Estherville, Iowa.
Wm. C. Tilden, B. S., Stanwood, Iowa.
Harry E. Titus, D. V. M., Lafayette, Indiana.
Annie (Walker) Kingsbury, B. S., 613 Pine St., Osage, Iowa.*
W. M. Warden, B. Ag., R. F. D. No. 1, Melbourne, Iowa.
Lorena Webber, B. S., Public Library, Iowa City, Iowa.
A. P. Whitmore, B. Ag., 1214 Farnam St., Omaha, Nebraska.
Ira B. Williams, B. S., M. S., Station A, Ames, Iowa.
J. H. Wykoff, B. C. E., 185 Fenelow Place, Dubuque, Iowa.*

GRADUATES OF 1899.

Howard W. Adams, B. S., 257 N. Gifford St., Elgin, Illinois.
J. R. Allen, B. S., 605-6 Commercial Bldg., Waterloo, Iowa.
R. C. Anderson, B. S. in M. E., 318 Hanover St., Milwaukee, Wisconsin.*
H. B. Bolks, B. S., 1635 C Ave., Cedar Rapids, Iowa.
Geo. W. Brooks, B. S. in E. E., 738 So. Kedzie Ave., Chicago, Illinois.
Clare (Campbell) McCusker, B. S., 593 Davis St., Portland, Oregon.
Elsie (Davis) Malcolm, B. Ph., San Ignacio 6, Havana, Cuba.
J. W. Deering, B. C. E., Herrick, South Dakota.
H. L. Eckles, B. S., Marshalltown, Iowa.
F. Ora (Edgett) Dow, B. S., 47 31st St., Milwaukee, Wisconsin.
G. L. Ehlers, B. S., Thornton, Iowa.*
H. O. Fritzel, B. S., R. F. D. No. 1, De Smet, South Dakota.

Lucy A. Giffen, B. Ph., 1156 Hewitt Place, New York City, New York.
Fannie Gilbert, B. Ph., Wagoner, Indian Territory.
John L. Gillespie, B. S. in E. E., 1121 Capitol Ave., Des Moines, Iowa.
A. R. Glaisyer, D. V. M., 143 Calle Cabildo, Manila, P. I.
Katherine Goble, B. Ph., Duff St., Ames, Iowa.
Racine D. Goble, B. S., North St., Ames, Iowa.
E. E. Granger, B. S., Kasbeer, Illinois.*
C. J. Griffith, B. S. A., Mountain Home, Idaho.
Walter I. Griffith, B. S. A., 1219 Broad St., Grinnell, Iowa.
Roland O. Hayter, B. M. E., 716 N. Madison St., Mason City, Iowa.
Alice (Hess) Myers, B. S., M. S., New Franklin, Missouri.
L. C. Hodson, B. C. E., Ames, Iowa.
D. E. Hollingsworth, B. S. A., East Peru, Iowa.
Arthur G. Hopkins, B. S. A., 488 Wardlow Ave., Winnipeg, Manitoba, Canada.
J. C. Horning, B. S. in E. E., 15 W. 2d South St., Salt Lake City, Utah.
H. Harold Hume, B. S. A., M. S. A., St. Ann de Belvue, Quebec, Canada.*
E. W. Humphrey, D. V. M.
M. S. Hyland, B. S. in E. E., 946 N. 42d St., Chicago, Illinois.*
W. J. Kennedy, B. S. A., Station A, Ames, Iowa.
Wm. H. Leathers, B. S. in E. E., Mapleton, Iowa.
C. P. Liegrot, D. V. M., Greenfield, Iowa.
J. P. Lund, B. S., Saint Ansgar, Iowa.
Erna Maguire, B. S., 5627 Huntington St., Duluth, Minnesota.
Norman J. Malcolm, B. S. in E. E., San Ignacio, 6, Havana, Cuba.
W. S. Marston, B. M. E., 288 Jewett Ave., West New Brighton, S. I., New York City, New York.
Edith I. Metcalf, B. Ph., Payette, Idaho.*
*Ethel Ray Mills, B. Ph.
Ruth Morrison, B. Ph., Station A, Ames, Iowa.
F. H. McQuiston, B. S. in E. E., 707 South 4th St., Fairfield, Iowa.
Fay I Nichols, B. C. E., Ambridge, Pennsylvania.
G. D. Nicoll, B. S. in E. E., Rushville, Indiana.
T. E. Nicoll, B. S. in E. E., Genl. Electric Co., Monadnock Bldg., Chicago, Illinois.
Chester M. Perrin, B. S., Mapleton, Iowa.
Russell Read, B. S., Ames, Iowa.
F. J. Rettenmaier, B. S., Carroll, Iowa.
Chas. Rhinehart, B. S. A., Dallas Center, Iowa.
F. W. Rhoades, B. S., Shelton, Washington.
Harry V. Rice, B. S. in E. E., Ames, Iowa.
Guy Roberts, B. S., Marathon, Iowa.
B. R. Rogers, D. V. M., Kansas State Agrl. College, Manhattan, Kansas.
Geo. M. Rommel, B. S. A., Dept. of Agriculture, Washington, D. C.
Chas. F. Rottler, B. S., 131 17th St., Dubuque, Iowa.
H. W. Sayles, B. S. in E. E., 418 7th Ave., Peoria, Illinois.
D. J. Scholten, B. S., Alton, Iowa.
F. A. Schuetz, B. S., Lawler, Iowa.
Annie (Seaver) Seaver, B. Ph.
Geo. A. Smith, B. C. E., 1504 W. 11th St., Des Moines, Iowa.
S. P. Smith, D. V. M.

C. F. Spring, B. S., 231 Utica Bldg., Des Moines, Iowa.
C. A. Steele, B. S. A., Ogden, Iowa.
Wayne L. Stillman, D. V. M., Anthon, Iowa.*
James M. Stimson, B. S., Republican City, Nebraska.*
F. V. Stout, B. S. A., Stout, Iowa.
Adele (Stuhr) Arndt, B. Ph., 4009 Lake Ave., Chicago, Illinois.
E. R. Thomas, B. S., 2838 Washington Ave., Ogden, Utah.*
Alice Tooley, B. Ph., 116 So. 7th St., Council Bluffs, Iowa.*
Mame Tooley, B. Ph., 1205 O'Farrell St., San Francisco, California.
Elbert B. Tuttle, B. S. in E. E., 409 Todd St., Wilkinsburg, Penn.
J. E. Van Liew, B. S. in E. E., 1306 E. Grand Ave., Des Moines, Iowa.
Maude Wakefield, B. Ph., Ames, Iowa.
R. A. Walker, B. S. in E. E., Care Central Ia. Tel. Co., Iowa Falls, Ia.
J. C. Welch, B. S. in E. E., 2221 N. Calvert St., Baltimore, Maryland.*
Jeanette (Younie) Prusia, B. S., Odebolt, Iowa.

GRADUATES OF 1900.

L. P. Bennett, B. S., Ferndale, Washington.*
F. S. Bone, B. S., R. F. D. No. 2, Grand River, Iowa.
J. W. Bunker, B. S. A., Winterset, Iowa.
Melville Cumming, B. S. A., Truro, Canada.
Wm. E. Day, D. V. M., Salt Lake City, Utah.
Chas. W. Deming, D. V. M., San Marco Flats, Spokane, Washington.
Leroy L. Diller, B. S. A., 28 N. 1st Ave., Marshalltown, Iowa.
Ella E. Down, B. Ph., 1125 Pleasant St., Des Moines, Iowa.
Maude Eastwood, B. Ph., Cedar City, Utah.
*Chas. A. Egger, B. S. in E. E.
Chas. E. Ellis, B. S. A., M. S. A., Station A, Ames, Iowa.
Estella Ellis, B. Ph., Bloomfield, Nebraska.
F. W. Faurot, B. S., Mountain Grove, Missouri.
A. L. Haecker, B. S. A., 503 South 26th St., Lincoln, Nebraska.
Hattie (Has Brouck) Porter, B. Ph., Grafton, Nebraska.
Paul Hensen, B. S., Havre, Montana.
Wm. A. Houghton, B. S. A., Norway, Iowa.
Della (Johnson) Butler, B. Ph., 2106 Rockefeller Ave., Everett, Wash.
Samuel P. Johnson, B. S. in E. E., Jefferson, Iowa.*
Western L. Johnson, D. V. M., 320 Quincy Bldg., Denver Colorado.
Birdie C. Kegley, B. S., 308 15th St., Olympia, Washington.
Susa (Kelsey) Breckon, B. Ph., Manchester, Iowa.
Addie L. Knight, B. Ph., 2400 Dearborn St., Chicago, Illinois.
Edmund G. LeClere, B. S., Quanah, Texas.*
Sybil Lentner, B S., Station A, Ames, Iowa.
Martin Lewis, B. M. E.
John Lowe, D. V. M., Aberdeen, South Dakota.
F. R. Marshall, B. S. A., College Station, Texas.
Wm. H. Mast, B. S. A., Halsey, Nebraska.
John F. McBirney, B. S. in E. E.
W. F. McDill, B. S. A.
A. D. McKinley, B. S., Clermont, Iowa.
Nellie Nicholas, B. Ph., Grand Junction, Iowa.
B. C. Nowlan, B. S. in E. E., 1100 Wenonah Ave., Oak Park, Illinois

A. Estella Paddock, B. S., Care National Y. W. C. A. Com., 18 Pekin Road, Shanghai, China.
Henry J. Palmer, B. S. A.
Foster Parker, D. V. M., 301 S. First St., Oskaloosa, Iowa.
Sophia (Schott) Morrison, B. Ph., 308 Dousman Ave., Escanaba, Mich.
Ira J. Scott, B. S., Ames, Iowa.
F. T. Suit, D. V. M., Ottumwa, Iowa.
H. H. Thomas, B. S., 219 Montrose Blvd., Chicago, Illinois.
E. R. Walker, B. S., 527 S. Dubuque St., Iowa City, Iowa.
Chas. S. White, B. S., Audubon, Iowa.
W. M. Wilson, B. M. E., Station A, Ames, Iowa.
Ray Wortman, B S. in E. E., 1275 W. Polk St., Chicago, Illinois.

GRADUATES OF 1901.

J. C. Blumer, B. S. A., 810 E. Washington St., Ann Arbor, Michigan.
M. D. Crane, B. S. A., Ames, Iowa.*
Herbert C. Eckles, B. S. A., R. F. D. No. 5, Marshalltown, Iowa.
W. D. Fitzwater, B. S., 178 Prospect Park, West Brooklyn, New York.
H. F. Garver, B. C. E., Ambridge, Pennsylvania.
C. E. Gray, B. S. A., The Ontario, 104, Washington, D. C.
E. H. Hall, B. S. A., P. O. Box 763, Aitken, Minnesota.
Henry S Hopkins, B. S. A., 469 Greene Ave., Brooklyn, New York.
Jas. F. Horner, B. S. A., Ashley, Missouri.
Ole C. Hovland, B. S. in E. E., Aberdeen, South Dakota.*
R. J. Kinzer, B. S. A., 618 No. 9th St., Manhattan, Kansas.
Willis E. Lamb, B. S. in E. E., 111 Loomis St., Chicago, Illinois.*
J. C. Lathrop, B. C. E., 416 W. 124th St., New York City, New York.
James Madsen, D. V. M., 3825 Aldine Place, Chicago, Illinois.
Frank G. Miller, B. S. A., University, Lincoln, Nebraska.
Edgar C. Myers, B. S. A., M. S. A., New Franklin, Missouri.
R. C. Obrecht, B. S. A., 1016 Nevada St., Urbana, Illinois.
Elmer I. Peshak, B. S. in E. E.
Hattie Pike, B. S., Y W. C. A., Sioux City, Iowa.
Harry R. Porter, B. S. A., Grafton, Nebraska.
Edward E. Savre, B. S. in E. E., 794 N. California Ave., Chicago, Ill.
Geo. F. Sokol, B. S. A., Onslow, Iowa.*
Ernest D. Stivers, B. S., Parker, South Dakota.
Geo. A. Taylor, B. C. E., 42 North Front St., Wheeling, West Virginia.
J. E. Van Liew, B. C. E., 1306 E. Grand Ave., Des Moines, Iowa.
Dan A. Wallace, B. S. A., Mora, Minnesota.*
Ed. H. Webster, B. S. A., Dept. of Agriculture, Washington, D. C.

GRADUATES OF 1902.

Fred R. Ahlers, D. V. M., Lamotte, Iowa.
Joseph C. Austin, B. M. E., Room 1028 Railway Exch. Bldg., Chicago, Ill.
Arthur F. Baldwin, D. V. M., 313 Montgomery St., Creston, Iowa.
Florence (Barber) Dumphy, B. S., Spokane, Washington.*
Josephine Barclay, B. S., Toledo, Iowa.*
L. May Barger, B. S., Nevada, Iowa.
Jesse D. Bell, B. S. A., Bellwood, Nebraska.

H. A. Bennett, B. C. E., 1204 Hewitt Place, New York City, New York.
Geo. W. Blanche, D. V. M., Belle Plaine, Iowa.
Walter C. Bower, D. V. M., Dubuque, Iowa.
Franklin Brown, B. S. A., 1544 11th St., Des Moines, Iowa.
Grace Campbell, B. S., State Normal School, Ashland, Oregon.
Jos. R. Campbell, D. V. M., 1169 10th St., Des Moines, Iowa.
Geo. L. Carter, B. S., La Kota, North Dakota.*
Mark P. Cleghorn, B. S. in E. E., Station A, Ames, Iowa.
Jno. S. Coye, B. S., Concord Square, Boston, Massachusetts.
Clarence L. Elliott, D. V. M.
F. D. Elwell, B. M. E., 1011 Ohio Ave., Sidney, Ohio.
Fred N. Elwell, D. V. M., Room 332 Live Stock Exch., Kansas City, Kan.*
J. T. Felton, B. S. in E. E., 1728 Spofford Ave., Spokane, Washington.
J. H. Frandson, B. S. A., M. S A., Hazelwood Creamery Co., Portland, Oregon.
John H. Gould, D. V. M., Ft. Des Moines, Iowa.
Ralph F. Graham, D. V. M., National Stock Yards, St. Clair, Illinois.*
Emma Hancock, B. S., West Union, Iowa.
Sam N. Hanger, B. S. A., Riverside, New Mexico.
E. C. Higgins, B. S. in E. E., 2614 Fulton St., Chicago, Illinois.
J. G. Hummel, B. M. E., Ames, Iowa.
Wilbur H. Hurst, D. V. M., Chadron, Nebraska.
Thyra Hytland, B. S., 203 Duff St., Ames, Iowa.
A. T. Jenkins, B. S. in E. E., 416 7th Ave., Pittsburg, Pennsylvania.
Ada Jenks, B. S., Ishkeming, Michigan.
Frances (Jenks) Cleghorn, B. S., Station A, Ames, Iowa.
Robt. R. Keith, B. M. E., 950 1st St., Milwaukee, Wisconsin.
Walter T. Kelly, B. M. E., 722 Chestnut St., Louisville, Kentucky.
C. Larsen, B. S. A., M. S. A., Agrl. College, Logan, Utah.
Ernest E. Lee, B. M. E., Evansville, Indiana.
H. J. Ludwig, B. C. E., 1933 Wesley Ave., Evanston, Illinois.*
W. H. Lytle, D. V. M., Boseman, Montana.*
Clive G. Martin, D. V. M., 1048 W. 19th St., Des Moines, Iowa.
Alice (Merritt) Parks, B. S., N. W. University, Evanston, Illinois.
Mae (Miller) Priem, B. S., 2047 12th Ave., N. E., Seattle, Washington.
Walter E. Miller, D. V. M., 428 W. Main St., Cherokee, Iowa.
Chas. M. Morgan, D. V. M., 809 Lydia Ave., Kansas City, Missouri.*
M. Ethelda Morrison, B. S., Mount Carroll, Illinois.
L. R. Muhs, B. C. E., 1721 Davenport St., Omaha, Nebraska.
J. F. McBirney, B. C. E., 1202 Washington St., Boise, Idaho.*
H. B. McClure, B. S. A., 1316 B. St., S. W., Washington, D. C.
H. A. McIntire, D. V. M., Maquoketa, Iowa.
R. C. McKinney, B. S., 1423 23rd St., Des Moines, Iowa.
T. W. Nichols, B. S. in E. E., Atlantic, Iowa.
E. R. Nowlan, B. S. in E. E., 1100 Wenonah Ave., Oak Park, Illinois.
W. W. Otto, B. S., 603 Fort St., East, Detroit, Michigan.
Luella Rantschler, B. S., 405 W. 13th St., Pueblo, Colorado.
Newton C. Rew, B. S. A., Auburn, Alabama.*
W. C. Scholty, D. V. M., Osage, Iowa.
H. G. Skinner, B. S. A., Brookings, South Dakota.
Arthur C. Slifer, B. S., 856 5th Ave., Cedar Rapids, Iowa.*

Margaret B. Stanton, B. S., Station A, Ames, Iowa.
*Stephen W. Stevens, B. S.
J. Edgar Stewart, B. C. E.
Walter Stuhr, D. V. M., Ames, Iowa.
C. W. Warburton, B. S. A., Dept. of Agriculture, Washington, D. C.
Frank M. Weakley, B. S. in Mn. E., Altoona, Pennsylvania.*
Chas. Welsh, B. C. E.
Arthur L. Wood, D. V. M., Hampton, Iowa.

GRADUATES OF 1903.

G. H. Angier, B. S. A., Schaller, Iowa.
M. Elva Barton, B. S., Humboldt, Iowa.
W. R. Battey, B. M. E., Dexter, Iowa.*
Percy Bissell, B. M. E., 144 N. Main St., Waterbury, Connecticut.
R. A. Blair, B. C. E., Care Bureau Engineer, Manila, P. I.
Mae Bower, B. S., Greene, Iowa.*
J. W. Brhel, Jr., B. M. E., 830 Harrison Ave., Beloit, Wisconsin.
J. F. Brown, B. C. E., 7640 Saginaw Ave., Chicago, Illinois.
Josephine (Brown) Hopkins, B. S., 349 Clinton Ave., Albany, New York.
Paul H. Brown, B. S. A., Vermillion, South Dakota.
C. C. Buchanan, B. S. in E. E., 13 Eagle St., Schenectady, N. Y.
Leon (Buck) Welch, B. S., Station A, Ames, Iowa.
D. J. Butts, B. S. in E. E., 463 West St., New York City, New York.
F. M. Byl, B. M. E., 1036 Park Ave., Beloit, Wisconsin.
A. B. Chattin, B. C. E., Box 158, Forsyth, Montana.
George I. Christie, B. S. A., Lafayette, Indiana.
John C. Cleghorn, B. S. in Mn. E., Huntley, Montana.
T. F. Crocker, B. S. in E. E., 111 Loomis St., Chicago, Illinois.*
W. M. Cummins, D. V. M., Box 231, Kemmerer, Wyoming.
H. G. Dimmitt, B. M. E., 1220 N. Wapello St., Ottumwa, Iowa.*
T. W. Dodd, B. C. E., 1521 6th Ave., Des Moines, Iowa.
H. K. Dodge, B. C. E., 1436 6th Ave., Des Moines, Iowa.
D. E. Donovan, B. C. E., Care City Bank, Jefferson, Iowa.
H. N. Ebersole, B. M. E., Fairbanks Morse Co., Buenos Ayres, Arg. Rep.
A. E. Elder, B. S., Allerton, Iowa.
Porter Eveland, B. S. in E. E., 932 Albany St., Schenectady, New York.
T. T. Fitch, B. C. E., 1233 Gerard St., Washington, D. C.
Estella Fogel, B. S., Station A, Ames, Iowa.
Guy S. Gearhart, B. M. E., U. S. Marine Corps, Pensacola, Florida.
H. Dana Goss, B. S. in E. E., 1428 New York Life Bldg., Chicago, Ill.
Nellie Grant, B. S., Rolfe, Iowa.
Lillian Hanson, B. S., Odebolt, Iowa.
W. W. Hendrix, B. C. E., 1521 6th Ave., Des Moines, Iowa.
Chas. A. Hobein, B. S. in E. E., United Rys Cos., St. Louis, Missouri.
Richard Hopkins, B C. E., 349 Clinton Ave., Albany, New York.
E. C. Houck, B. S. in E. E., Browning, Missouri.
E. R. T. Howard, B. S. A., 44 Franklin St., Chicago, Illinois.*
Ruthella B. Howe, B. S., 1992 W. Van Buren St., Chicago, Illinois.
Thos. S. Hunt, B. S. A., Billings, Montana.
Edward A. Hyde, B. S. A., 1840 Summit Ave., Washington, D. C.*
Ira W. Jones, B. S., Clear Lake, Iowa.

John S. Jones, B. S. A., R. F. D. No. 7, San Antonio, Texas.*
Geo. P. Kempf, B. M. E., 67 1-2 30th St., Milwaukee, Wisconsin.
A. G. Landsberg, B. S. in E. E., 502 N. 64th Ave., Oak Park, Illinois.
A. C. Lasher, B. S. in E. E., 333 Pitt St., Wilkinsburg, Pennsylvania.
W. A. Linklater, B. S. A., State College, Pullman, Washington.
Geo M. Lummis, B. S. A., Agricultural College, New Mexico.
Marie Malley, B. S., 5059 Fairmont Ave., St. Louis, Missouri.
Walter H. Martin, D. V. M., South Hoff No. 312, El Reno, Oklahoma.
Geo. W. Miller, B. C. E., 1515 Center St., Des Moines, Iowa.
Lloyd H. Moore, B. M. E., Abbotsford, Wisconsin.*
O. B. Moorehouse, B. M. E., Glidden, Iowa.
Frank L. McClain, B. S. in E. E., 217 S. 6th St. E., Cedar Rapids, Iowa.*
Fay McClure, B. C. E., 116 2d St., S. E., Washington, D. C.*
Effie (McKimm) Hurt, B. S., Douglass St., Ames, Iowa.
J. C. Nelson, B. C. E., Box 1568, Green Bay, Wisconsin.*
Roy Norman, B. M. E., 42 30th St., Milwaukee, Wisconsin.
C. W. Norton, Jr., B. S. A., Durant, Iowa.
W. W. Otto, B. S. A., 103 Fort St., East, Detroit, Michigan.
Forest E. Overholser, B. S. in E. E., 5th Infantry, Cardenas, Cuba.
H. M. Parks, B. S. in Mn. E., N. W. University, Evanston, Illinois.
Roy E. Peshak, B. S in E. E., 114 Page St., Toledo, Ohio.
Bertha (Pierce) Evans, B. S., Perry, Iowa.
Frank A. Rew, B. S. in E. E., 333 Pitts St., Wilkinsburg, Pennsylvania.
M. C. Reynolds, B. S. in E. E., 502 N. 64th Ave., Oak Park, Illinois.
E. G. Ritzman, B. S. A., Dept. of Agriculture, Washington, D. C.
C. W. Roland, B. C. E., Adel, Iowa.*
M. Rosenberger, D. V. M., Box 367, Santa Barbara, California.
Oscar Royce, B. S. A., Matthews, Missouri.
H. O. Sampson, B. S., Dept. of Agriculture, Washington, D. C.
A. S. Shealy, D. V. M., Care Bureau of Agrl., Manila, P. I.
W. W. Smith, B. S. A., Lafayette, Indiana.
Nina (Starr) Hutchison, B. S., Oroville, California.
Otto Starzinger, B. S. in E. E., 325 Lincoln Trust Bldg., St. Louis, Mo.
C. H. Streeter, B. C. E., Cedar Falls, Iowa.
Harry L. Tillson, B. S. in E. E., 621 Tama St., Boone, Iowa.
Maude Vanatta, B. S., 825 2d St., Fall River, Massachusetts.
H. G. Van Pelt, B. S. A., Station A, Ames, Iowa.
H. I. Waggoner, B. S. in E. E., 503 Park Place, Peoria, Illinois.*
John C. Wall, B. S. A., Ankeny, Iowa.*
B. Arthur Whisler, B. S. in E. E., 9 Spring St., Utica, New York.
W. J. Wilson, B. S. A., McDonald Stock Farm, Aurora, Illinois.
Ethelyn (Younie) Weston, B. S., Antwerp, New York.

GRADUATES OF 1904.

R. M. Alvord, B. S. in E. E., 2314 Channing Way, Berkley, California.
Harriet Anderson, B. S., Arthur, Iowa.
Isaac Anderson, B. S. in E. E., 285 Donald St., Winnipeg, Manitoba, Canada.*
Ed. V. Andrews, B. M. E., 718 Walker St., Milwaukee, Wisconsin.
Alfred Atkinson, B. S. A., Experiment Station, Bozeman, Montana.
H. D. Austin, B. S. in E. E., 105 Emerson Ave., Chicago, Illinois.*

R. G. Austin, B. C. E., Ambridge, Pennsylvania.
C. E. Bartholomew, B. S., Station A, Ames, Iowa.
Wm. A. Bevan, B. S., Cavite, P. I.
H. F. Bishop, B. M. E., Nadiad, India.
Walter C. Bishop, B. M. E., C. D. & P. Tel. Co., Pittsburg, Pa.
H. T. Borsheim, B. M. E., Benjamin Elec. Co., Clinton St., Chicago, Ill.
Wm. I. Brock, B. S. in E. E., 13 Eagle St., Schenectady, New York.*
Frank L Brown, B. C. E., 3717 4th St., Des Moines, Iowa.*
Nellie Brown, B. S., Dexter, Iowa.
O. L. Brown, B. C. E., 4318 St. Lawrence Ave., Chicago, Illinois.
Henry J. Brunnier, B. C. E., Oak & Broderick Sts., San Francisco, Cal.
Eugene H. Bruntlett, B. C. E., 1606 4th Ave., South, Minneapolis, Minn.
R. E. Buchanan, B. S., Station A, Ames, Iowa.
A. R. Buckley, B. S. in E. E.
J. Harry Burton, B. M. E., 142 Garfield Ave., Galesburg, Illinois.
Claude V. Campbell, B. S., Jewell, Iowa.
Ethyl Cessna, B. S., Staion A, Ames, Iowa.
Bernice Corlette, B. S., 1106 Clark St., Ames, Iowa.
Glen H. Corlette, B. M. E., 552 Public Ave., Beloit, Wisconsin.
Ernest Cotton, B. C. E., Miami, Florida.*
F. H. Crouse, B. S. A., Dike, Iowa.
Gertrude (Curtiss) Paxton, B. S., 416 N. 4th Ave., Maywood, Illinois.
Harry G. Danforth, B. S. A., Valley City, North Dakota.
Wayne Dinsmore, B. S. A., Douglass St., Ames, Iowa.
C. O. Dixon, B. S. A., 1510 10th Ave., Moline, Illinois.
I. A. Dreher, B. M. E., Harlan, Iowa.
Daniel W. Eiler, B S. A., Sioux Rapids, Iowa.
Arthur L. Evans, B. S. in E. E., 1733 Diversy Blvd., Chicago, Illinois.
J. H. Garberson, B. S., 2414 Prairie Ave., Chicago, Illinois.
L. T Gaylord, B. C. E., 235 Hyde Park Ave., Tampa, Florida.
E. C. Gersbach, B. C. E., Huntley, Montana.
Ralph Graham, D. V. M., P. O. 1107, Oklahoma City, Oklahoma.
Chas. Gray, B. S. A., 17 Exchange St., Chicago, Illinois.
Fred Hamerly, B. M. E., West Allis, Wisconsin.*
Fred N. Hansen, B. S. A., Jefferson, Iowa.
Park H. Haselton, B. S. in E. E., 615 Germania Life Bldg., St. Paul, Minnesota.
Mark Havenhill, B. S. A., Fox, Illinois.
A. C. Holden, B. S. in E. E., Great Northern Genl. Office, St. Paul, Minn.
Leslie M. Hurt, D. V. M., Douglass St., Ames, Iowa.
W. A. Ireland, B. S. in E. E., 1203 Esplanade St., Allegheny, Pa.
Pearle (Johnson) Van Houten, B. S., Ames, Iowa.
John W. Jordan, B. S., Delta Tau Delta House, Iowa City, Iowa.
Edna (King) Reuling, B. S., 604 Pleasant St., Beloit, Wisconsin.
Eva B. Kingkade, B. S., 101 Boone St., Ames, Iowa.
H. H. Knowles, B. S. in Mn. E., 1122 Mineral Ave., Hynes, Iowa.*
E. V. Larson, B. S., 618 Packard St., Ann Arbor, Michigan.
Geo. V. Leffler, B. S. A., R. F. D. No. 1, Stockport, Iowa.
Otis B. Lofstedt, B. C. E., Grand Junction, Iowa.
Leroy L. Lyford, B. C. E., Fulton, Kentucky.
T. H. MacDonald, B. C. E., Station A, Ames, Iowa.

Fred H. Marsh, B. C. E., Hastings, Colorado.
Fred G. Matthews, D. V. M., Anniston, Alabama.*
G. N. Mereness, B. S. in E. E., 416 7th Ave., Pittsburg, Pennsylvania.
M. L. Merritt, B. S. A., Bureau of Forestry, Calapan, Mindoro, P. I.
A. A. Miller, B. S. A., Box 460, Perry, Iowa.
Oliver H. Miller, B. S., 610 Youngerman Block, Des Moines, Iowa.
T. R. Minert, B. M. E., South Milwaukee, Wisconsin.*
R. H. Moffett, B. S. in Mn. E., U. S. Mint, San Francisco, California.
Leslie C. Moody, B. M. E., 358 Jackson Blvd., Chicago, Illinois.*
Lester Morris, B. C. E., Calle Progress, Iloilo, Panay, P. I.
Rachel (Mosier) Gray, B. S., The Ontario 104, Washington, D. C.
Will S. Munro, B. S. in E. E., Terre Haute, Indiana.
Robt. F. McKinney, B. S. in E. E., 13 Eagle St., Schenectady, N. Y.
Roscoe McMillan, B. S. in E. E., 2289 W. Congress St., Chicago, Illinois.
R. B. Newcom, B. S., Odebolt, Iowa.*
J. L. O'Hearn, B. C. E., Clinton, Oklahoma.
F. M. Okey, B. C. E., 704 Center St., Des Moines, Iowa.*
Webb H. Otis, B. M. E., 444 Massachusetts Ave., Boston, Mass.
Alice (Overholser) Havenhill, B. S., Fox, Illinois.
Perry C. Parks, B. S. A., Tuskegee, Alabama.
E. C. Peterson, B. S. in E. E., 691 Mance (ville St. Louis), Montreal, Canada.
Geo. V. Pew, B. M. E., Le Mars, Iowa.
Paul D. Philips, B. M. E., 346 E. Fullerton Ave., Chicago, Illinois.
F. A. Pielsticker, B. S. in E. E., Pine and 15th Sts., St. Louis, Missouri.
L. S. Poage, B. M. E., 388 16th Ave., Milwaukee, Wisconsin.
C. A. Rapp, D. V. M., 613 Virginia St., Sioux City, Iowa.
Homer W. Read, B. S. in E. E., 823 Seneca St., Seattle, Washington.
Ellison L. Ross, B. S., Station A, Lincoln, Nebraska.
Clarence J. Roup, B. S., 1403 4th St., S. E., Minneapolis, Minnesota.
Jas. A. Rowat, B. C. E., 1101 Walker St., Des Moines, Iowa.
Louise Rowe, B S., 321 Boone St., Boone, Iowa.
Chester W. Rubel, B. S. A., San Louis Obispo, California.
H. O. Sampson, B. S. A., Dept. of Agrl., Washington, D. C.
C. O. Schooley, B. S. in E. E., 1541 Ashland Ave., Indianapolis, Indiana.
Alexander H. Scott, B. S. in E. E., 745 Trenton Ave., Wilkinsburg, Pa.
H. L. Scranton, B. S. in E. E., 332 Germania Ave., Schenectady, N. Y.
J. O. Shaff, B. S. A., Camanche, Iowa.
D. DeLa Sheldon, B. S. A., 778 Washington St., Milwaukee, Wisconsin.
C. E. Shipman, B. C. E., Billings, Montana.
Earl O. Shreve, B. S. in E. E., 2314 Channing Way, Berkley, Calif.
C. Dean Simpson, B. M. E., 1028 Park Ave., Beloit, Wisconsin.*
Bird (Slater) Smith, B. S., Naval Proving Ground, Indian Head, Md.
A. J. Smith, B. S. in E. E., Naval Proving Ground, Indian Head, Md.
Clyde W. Smith, B. S. in Mn. E., Guanicivi, State of Durango, Mexico.*
E. P. Spalding, B. S. in E. E.
Arthur B. Sperry, B. S. in E. E., 416 Jackson Blvd., Chicago, Illinois*
Nettie Starr, B. S., Benton City, Missouri.
Otto Starzinger, B. S. in E. E., 325-6 Lincoln Trust Bldg., St. Louis, Mo.
Edith (Stevens) Bruntlett, B. S., 1606 4th Ave., Minneapolis, Minn.
Wm. D. Sumner, B. S. in E. E., Decatur, Illinois.

Laura Taggart, B. S., Station A, Ames, Iowa.
H. O. Tellier, B. S. A., 477 Bowen Ave., Chicago, Illinois.
Edgar L. Tenney, B. M. E., 503 Eddy St., Chicago, Illinois.
Katharine Terrill, B. S., Ames, Iowa.
D. C. Thomas, B. M. E., 209 Rhodes St., Charles City, Iowa.
Chas. L. Tibbets, B. S. in E. E., 419 W. 5th St., Santa Ana, California.
Gonzalo S. Torres, B. S. A., Honda No. 2, Leon, Guanajuato, Mexico.
Carl H. Tourgee, B. S. A., Dairy Dept., Fayetteville, Arkansas.
Ricardo B. Ulibarri, B. S. A., Pacheos 63, Leon, Guanajuato, Mexico.
Eldon L. Usry, B. M. E., 512 East Front St., Bloomington, Illinois.
C. G. Waggoner, B. S. in E. E.
J. Q. Wickham, B. C. E., Ames, Iowa.
Harold R. Williams, B. S. A., Grand View, Iowa.*
Clinton B. Wilson, B. C. E., Miami, Florida.*

GRADUATES OF 1905.

G. J. Adamson, B. C. E., Omaha, Nebraska.
T. R. Agg, B. S. in E. E., University, Urbana, Illinois
Keo Anderson, B. S., Station A, Ames, Iowa.
John Anstey, D. V. M., Massena, Iowa.
H. F. Anthony, B. C. E., Care H. L. Cooper, 60 Wall St., New York City, New York.
J. B. Ashby, B. S. A., Audubon, Iowa.
H. T. Avey, B. M. E., Presby. College, Allahabad, India.
D. C. Barrett, B. C. E., Dakota City, South Dakota.*
Jeanette Bartholomew, B. S., Ames, Iowa.
J. N. Benson, B. C. E., Cheyenne, Wyoming.*
R. K. Bliss, B. S. A., Station A, Ames, Iowa.
Frank Bothell, B. S. A., Hazelwood Creamery Co., Spokane, Wash.
W. C. Botsford, B. S. in E. E., Clarinda, Iowa.*
A. R. Boudinot, B. C. E., 1136 Perry St., Chicago, Illinois.
M. L. Bowman, B. S. A., Station A, Ames, Iowa.
Iva Brandt, B. S., Ames, Iowa.
Ben Budge, B. S., 3150 Lake Park Ave., Chicago, Illinois.
J. A. Buell, B. C. E., San Luis, Cuba.
C. F. Bullock, B. M. E.
A. Cammack, B. M. E., 510 S. Howes St., Ft. Collins, Colorado.
Mabel Campbell, B. S., 1110 Douglass St., Ames, Iowa.
G. R. Cassidy, B. S. A., 1230 11th St., Des Moines, Iowa.
J. W. Caughey, B. M. E., 868 So. Pierce St., Milwaukee, Wis.
Frank Cessna, B. C. E., 202 W. 81st St., New York City, New York.
Viola Chambers, B. S., 220 E. McDonald St., Newton, Iowa.
W. C. Claybaugh, B. S. A., 119 Park Ave., De Kalb, Illinois.
R. W. Clyde, B. C. E., Gatun, Panama Canal Zone.
A. B. Coates, B. S. in E. E.
R. C. Coffey, B. S. in Mn. E.
Mildred Cole, B. S., Station A, Ames, Iowa.
R. L. Collett, B. S., 59 Perkins Hall, Cambridge, Massachusetts.
A. L. Cook, B. S. in E. E., 418 Whitney Ave., Wilkinsburg, Pa.
R. D. Cooper, B. C. E.
R. L. Cox, B. C. E., White Bird, Idaho.

C. J. Crawford, B. C. E., Williams, Arizona.*
C. H. Currie, B. C. E., White Bird, Idaho.
*J. F. Curtiss, B. S. in E. E.
R. S. Curtiss, B. S. A., Box 237, Raleigh, North Carolina.
G. C. Cutler, B. S. A., Carthage, Illinois.
J. L. Cutler, B. S. A.
P. H. Daniels, B. M. E., 1430 Eastwood Ave., Chicago, Illinois
Jessie Davidson, B. S., Monticello, Iowa.
Mary Davidson, B. S., Monticello, Iowa.
H. G. Dean, B. S. A., Prattsburgh, New York.
W. E. Deshler, B. M. E., 711 Washington Ave., Council Bluffs, Iowa.
M. V. Dodge, B. C. E., Station A, Ames, Iowa.
R. R. Dykstra, D. V. M., Station A, Ames, Iowa.
Howard Ellenberger, B. S. A., Wayne, Illinois.
J. A. Ellis, B. S. A., Central City, Nebraska.
A. C. Epley, B. S. A., Waverly, Iowa.
D. H. Fair, B. C. E., Norwalk, Ohio.*
H. S. Fawcett, B. S., Agrl. Experiment Station, Gainesville, Florida.
D. B. Fegles, B. C. E., Laboca, Panama Canal Zone.*
S. E. Fenstermaker, B. M. E., 605-65 Place, Chicago, Illinois.
J. P. Flynn, B. C. E.
L. H. Folger, B. S.
James Forrest, B. C. E., Garner, Iowa.
Jessie Fraser, B. S., Paullina, Iowa.
C. H. Frechtling, B. S. A.
H. J. Frederick, D. V. M., 363 East Center St., Logan, Utah.
L. S. Fyler, B. S. in E. E.
Carolyn Gabrielsen, B. S., Station A, Ames, Iowa.
J. H Galley, B. C. E.
N. B. Garver, B. C. E., 867 Willow Ave., Toledo, Ohio.
C. W. Gay, B. S. A., University, Columbus, Ohio.
W. D. Gilchrist, D. V M., 477 Bowen Ave., Chicago, Illinois.*
Leigh Gillespie, B. S. in E. E., 652 University Ave., Rochester, N. Y.*
Opal Gillette, B. S., Fostoria, Iowa.
R. U. Gillette, B. S. A., Fostoria, Iowa.
Rose (Goble) Bradley, B. S., 1115 Duff St., Ames, Iowa.
W. M. Gordon, D. V. M., 2306 Boulevard Ave., Sioux City, Iowa.
Merritt Greene, Jr., B. S. A., Marshalltown, Iowa.
Zaidee Griffith, B. S., Milton, Iowa.
Victor Grubb, B. S. A., Elberton, Washington.
E. S. Guthrie, B. S. A., Ohio State University, Columbus, Ohio.
W. R. Haselton, B. S. in E. E., 332 Germania Ave., Schenectady, N. Y.
Stella Hibbard, B. S., Tremonton, Utah.
F. F. Hofacre, B. S.
A. H. Hoffman, B. S. in E. E., Station A, Ames, Iowa.
J. W. Hook, B. M. E.
A. R. Horn, B. S. in E. E., Architect's Office, Treasury Department, Washington, D. C.
Chelsea Howard, B. S. A., Zenner Disinfectant Co., Detroit, Michigan.
W. S. Hunt, D. V. M., La Porte City, Iowa.
B. C. Jacobsen, B. C. E., Post Falls, Idaho.*

M. P. Jarnagen, B. S. A., Blacksbury, Virginia.*
Edward Jones, B. M. E.
F. F. Jorgenson, B. S. in Mn. E., Buxton, Iowa.
May Kennedy, B. S., Collins, Iowa.
J. A. Knesche, B. M. E., Wheeling, West Virginia.
C. J. Knickerbocker, B. S. A., Fairfax, Iowa.
G. P. Labberton, B. M. E.
O. L. Leefers, B. C. E., Ashton, Idaho.
O. E. Lewis, B. C. E., 1623 W. Boone Ave., Spokane, Washington.
W. J. Lynch, B. S. A., Green Mountain, Iowa.
Wm. E. Madson, D. V. M., 344 2d Ave., West, Cedar Rapids, Iowa.
Clarence Mahanke, B. S. in E. E., 3200 Pine St., St. Louis, Missouri.*
Earl Maharg, B. S. A., Audubon, Iowa.
W. G. Middleton, D. V. M., 332 Newbury St., Boston, Massachusetts.
F. C. Minkler, B. S. A., Nevada, Iowa.
C. C. Morris, B. C. E., Tuguegarao, Cagayau Province, P. I.
Margaret Morrison, B. S., Waterloo, Iowa.
Agnes Mosher, B. S., Sioux Rapids, Iowa.
M. L. Mosher, B. S. A., Station A, Ames, Iowa.
P. L. McCain, B. S. in E. E., 332 Germania Ave., Schenectady, N. Y.
A. K. McCampbell, B. C. E., Basin, Wyoming.
M. E. McCullough, B. S. A., Station A, Ames, Iowa.
Ethel McKinley, B. S., St. Ansgar, Iowa.
J. A. McLean, B. S. A., Station A, Ames, Iowa.
C. W. Nash, B. S. A., Maryland Station, College Park, Maryland.
Fred O. Nelson, B. S. A., Armstrong, Iowa.
H. Ness, B. S. A., Station A, Ames, Iowa.
S. S. Nichols, B. M. E., Gas and Electric Co., El Paso, Texas.
Ramsey Oppenheim, B. S. A., Dairy and Product Review, San Francisco, California.*
Pearl (Overholser) Ellis, B. S., Central City, Nebraska.
M. L. Page, B. M. E., 823 Harrison Ave., Beloit, Wisconsin.
T. J. Patton, B. C. E.
I. B. Paxton, D. V. M., Room 21, Eagle Block, Salt Lake City, Utah.
E. E. Pendray, B. S. in E. E., State Normal School, Cape Girardeau, Mo.
A. L. Peterson, B. S. A., Box 207, Kingsburg, California.
G. C. Peterson, B. C. E., Gatun, Canal Zone, Panama.
Celestine Pettinger, B. S., Cumberland, Iowa.
H. R. Plumley, B. S. in E. E., 1414 Grand Ave., Milwaukee, Wisconsin.
B. E. Porter, B. S. A., Agrl. College, College Park, Maryland.
C. M. Prather, B. S. in E. E., 914 N. Adams St., Mason City, Iowa.
Helen Prouty, B. S., Humboldt, Iowa.
Fred Rasmussen, B. S. A., Station A, Ames, Iowa.
G. C. Read, B. S. in E. E., 332 Germania Ave., Schenectady, New York.
Charles Reinbott, B. S. A., Huron, Ohio.
M. J. Reinhart, B. C. E., Station A, Ames, Iowa.
F. H. Ricker, B. M. E., 31 Jackson St., Deadwood, South Dakota.
F. V. Roy, B. S. in E. E., Monticello Hotel, St. Louis, Missouri.
Mrs. Grace Rueda, B. S., Tucuman, Argentine Republic, South America.
H. S. Rush, B. S. in E. E., No. 1 Eagle St., Schenectady, New York.
W. W. Schwarting, B. S. in E. E., 215 Biddle St, Wilkinsburg, Pa.*

A. B. Scott, B. S. in Mn. E., 4 Terrace St., Deadwood, South Dakota.
C. R. Scott, B. S. A., Box 1418, Colorado Springs, Colorado.
R. S. Scott, B. M. E., 238 Marshall Ave., Columbus, Ohio.
A. J. Secor, B. S. A., Melbourne, Iowa.
I. R. Smith, B. M. E., 136 10th St., Milwaukee, Wisconsin.
Lola Stephens, B. S., Station A, Ames, Iowa.
Imogene Stevens, B. S., Linn St., Boone, Iowa.
W. H. Stevenson, B. S. A., Station A, Ames, Iowa.
J. D. Stillwell, D. V. M., Paullina, Iowa.
R. S. Stinson, B. S. A., Audubon, Iowa.
K. W. Stouder, D. V. M., State College, Pullman, Washington.
E. A. Stout, B. S. A., Westbourne, Manitoba, Canada.
F. F. Taylor, B. M. E., Anniston, Alabama.
W. A. Tener, B. S. A., Care International Committee, Y. M. C. A., 3 West 29th St., New York City, New York.
E. B. Thomas, B. S. A., Green Mountain, Iowa.
Winifred (Thompson) Overholser, B. S., Cambridge, Iowa.
A. J. Treman, D. V. M., Panora, Iowa.*
W. D. Truman, B. C. E., 4960 St. Louis Ave., St. Louis, Missouri.
B. R. Wallace, B. C. E., Room 1214, 60 Wall St., New York City, N. Y.
P. J. Walton, B. S. in E. E.
M. I. Warden, B. C. E., 1714 West 12th St., Des Moines, Iowa.
E. B. Watson, B. S. A., Ames, Iowa.
I. J. Welch, B. S., Station A, Ames, Iowa.
C. A. Western, B. S. A., Beaconsfield, Iowa.
Erma Wiley, B. S., S. 720 Cedar St., Spokane, Washington.
M. B. Williams, B. C. E., Sunset City, California.
Fred Wood, B M. E.
C. Wilton Woodard, B. M. E., 3935 Indiana Ave., Chicago, Illinois.
D. C. Woodard, B. S. in E. E.
F. E. Woodman, B. M. E., Jamestown Exposition, Jamestown, Virginia.
Lois (Woodman) Agg, B. S., West Main St., Urbana, Illinois.
Theresa Woodruff, B. S., Crookston, Minnesota.
G. J. Zanke, B. M. E., 176 11th St., Milwaukee, Wisconsin.

GRADUATES OF 1906.

A. O. Anderson, B. S. in Mn. E., Lake City, Iowa.
J. L. Anderson, B. S. in E. E., Morton Park, Illinois.
R. W. Atkinson, B. S. in E. E., 521 Franklin St., Wilkinsburg, Pa.
H. C. Austin, B. S. in Mn. E.
H. K. Babbitt, B. C. E., 714 West St., Wilmington, Delaware.
J. E. Bacchus, B. S. A.
R. L. Baker, B. M. E.
M. R. Bowen, B. S. in Mn. E., 719 Clark St., Des Moines, Iowa.
Geo. R. Boyd, B. C. E., Red Oak, Iowa.
E. F. Bridges, B. C. E.
E. P. Brintnall, B. S. A., 96 N. Pleasant St., Amherst, Massachusetts.
Frank F. E. Brown, B. C. E., West Side, Iowa.
H. O. Buckman, B. S. A., Station A, Ames, Iowa.
Guy R. Campbell, B. C. E., Manilla, Iowa.
L. E. Carter, B. S. A., Station A, Ames, Iowa.

R. I. Caughey, B. S. in E. E., 335 Wood St., Dallas, Texas.
R. A. Cave, B. S. A., Station A, Ames, Iowa.
J. C. Chalupnik, B. S. A., Corona, California.
G. S. Chiles, B. M. E., Collinwood, Ohio.
C. W. Clements, B. M. E., Station A, Ames, Iowa.
L. E. Coates, B. S. in E. E.
D. H. Cogswell, B. S. in E. E., 517 Franklin St., Wilkinsburg, Pa.
Clarence G. Cole, D. V. M., 830 No. 24th St., South Omaha, Nebraska.
W. B. Cole, B. S. in Mn. E., Denver, Colorado.
F. P. Collison, D. V. M., Norfolk, Virginia.
R. W. Crouse, B. S. A., Kingsley, Iowa.
H. L. Doty, B. S., Webster City, Iowa.
Mary (Yeisley) Dyer, B. C. E., 95 Yesler Way, Seattle, Washington.
W. R. Eastman, B. S. A., Osage, Iowa.
W. D. Elwood, B. S. in E. E., Omaha, Nebraska.
M. I. Evinger, B. C. E., Ames, Iowa.
R. A. Farnum, B. S. A., Sandahl Ranch, Woolsey, Montana.
Jennie Fedson, B. S., 914 Story St., Ames, Iowa.
Don Fish, B. S. A., Dillon, Montana.
Melissa Flynn, B. S., Station A, Ames, Iowa.
C. H. Ford, B. C. E., Care M. & St. L. Ry., Bradley, South Dakota.
W. L. Foster, B. C. E., Homestead, Oregon.
Edith Fraseur, B. S., Eagle Grove, Iowa.
S. A. Fry, B. S. A., Corydon, Iowa.
W. L. Fulton, B. C. E., 121 N. 20th St., Omaha, Nebraska.
R. A. Furrow, B. C. E.
Edith George, B. S., Paullina, Iowa.
R. H. Gillis, B. S. A., Mt. Pleasant, Iowa.
H. J. Gould, B. C. E., Ambridge, Pennsylvania.
R. S. Goulden, B. M E., 915 3d Ave., Council Bluffs, Iowa.
H. W. Gray, B. C. E., University, Urbana, Illinois.
Floy Greer, B. S., Station A., Ames, Iowa.
R. L. Gribben, B. S. A., Station A, Ames, Iowa.
O. E. Guibert, B. C. E., 817 Pleasant St., Des Moines, Iowa.
G. B. Guthrie, B. S., 59 Perkins Hall, Cambridge, Massachusetts.
J. C. Guthrie, B. S. A., Station A, Ames, Iowa.
H. B. Hanson, B. M. E.
H. M. Hanssen, B. C. E., 701 North Main St., Carroll, Iowa.
E. N. Harris, B. M. E., 31 Jackson St., Deadwood, South Dakota.
C. A. Heberling, B. C. E., Colville, Washington.
C. J. Heisey, B. S. A.
L. L. Hidinger, B. C. E., Washington, D. C.
Carlotta Howard, B. S., Station A, Ames, Iowa.
H. H. Howard, B. S. A., Ames, Iowa.
I. W. Hutchins, B. S. A., Algona, Iowa.
L. S. Ickis, B. S. in E. E., 13 Eagle St., Schenectady, New York.
J. F. Ingels, B. S. A.
Mae Jackson, B. S., Station A, Ames, Iowa.
R. E. Jeffs, B. S. A., Ames, Iowa.
John Jenkins, B. S. A., Columbus Junction, Iowa.
F. A. Johnson, B. S. in E. E., 516 10th St., South, Minneapolis, Minn.

Olla Johnson, B. S., Moulton, Iowa.
Ray Jolls, D. V. M., Adel, Iowa.
J. P. Jorgenson, D. V. M., Main St., Kimballton, Iowa.
E. N. Jory, B. S. in E. E., 419 9th St., South, Minneapolis, Minnesota.
L. E. Kelsey, B. S. A., Iowa Falls, Iowa.
G. R. Kenny, B. S. in E. E., 1025 Mary Place, Minneapolis, Minnesota.
R. C. Kibbey, B. S. A., Box 215, Malvern, Pennsylvania.
M. L. King, B. M. E., Station A, Ames, Iowa.
W. H. Knox, B. M. E., 219 North 4th St., Hannibal, Missouri.
A. R. Kohler, B. S. A., Agricultural College, Michigan.
C. W. Larson, B. S. A., Station A, Ames, Iowa.
H. A. Lathrop, B. C. E., Tekoa, Washington.
C. W. Lawrence, B. S. A., Eldora, Iowa.
H. L. Lundeen, B. S. A., Paullina, Iowa.
O. E. Lungren, B. M. E., 2316 7th Ave., Moline, Illinois.
I. P. Mabie, B. M. E., 176 11th St., Milwaukee, Wisconsin.
Mathilda (Madson) Frandson, B. S., 186 Chapman St., Portland, Ore.
W. A. Marsden, B. S. in E. E., 419 9th St., South, Minneapolis, Minn.
W. D. Maxwell, B. C. E., 1111 E. 9th St., Des Moines, Iowa.
Frank Meiser, B. S. A.
I. E. Melhus, B. S.
H. M. Miller, B. M. E.
F. B. Money, B. C. E., 624 Elston Ave., Chicago, Illinois.
H. I. Moore, B. C. E., 2632 Durant Ave., Berkley, California.
Mac Mosier, B. S. in Mn. E., Box 372, Bisbee, Arizona.
A. H. MacGregor, B. M. E., Panora, Iowa.
R. W. McPherson, B. C. E., 1281 E. Pierce St., Council Bluffs, Iowa.
Max Nelson, B. S. in E. E., 516 South 10th St., Minneapolis, Minnesota.
A. J. Norman, B. S. A., 3215 No. 25th St., Omaha, Nebraska.
H. V. Nye, B. S. in E E., 4815 Forest Ave., Station H, Cincinnati, Ohio.
K. R. Ogden, B. S. in E. E., Pittsburg, Pennsylvania.
R. R. Palmer, B. C. E.
Jas. W. Patch, B. S. in E. E.
P. T. Pechstein, B. S. A., 1028 Concert St., Keokuk, Iowa.
C. A. Peterson, B. S. in E. E., 754 Ainslie St., Chicago, Illinois.
M. A. Pishel, B. S. in Mn. E., Laurel, Iowa.
J. H. Plitt, B. C. E., 745 15th St., Des Moines, Iowa.
Ed. A. Reese, B. S. in E. E., Rock Island, Illinois.
W. E. Reuling, B. M. E., 604 Pleasant St., Beloit, Wisconsin.
F. C. Rieke, B. S. A., R. R. No. 1, Blairstown, Iowa.
G. A. Roberts, B. S. A., Secy. Y. M. C. A., Corvallis, Oregon.
F. T. Rowat, B. S. in E. E., 1101 Walker St., Des Moines, Iowa.
W. G. Rubel, B. S. A., Welch St., Ames, Iowa.
A. L. Sanford, B. M. E., 45 Stoughton Ave., Hyde Park, Massachusetts.
E. A. Sayre, B. S. in Mn. E., 619 Mulberry St., Des Moines, Iowa.
A. F. Schiele, B. S. A., Durant, Iowa.
Winifred Shaw, B. S., 16th and Euclid Ave., Upland, California.
F. M. Sloane, B. C. E.
Wm. H. Smith, B. S. A.
G. H. Stewart, B. C. E.
Leroy Stuart, B. S. A., West Branch, Iowa.

C. G. Throckmorton, B. S. in E. E., 1114 N. 24th St., Omaha, Nebraska.
G. W. Tinsley, B. M. E., 715 Center St., Hannibal, Missouri.
P. B. Tracy, B. S. in Mn. E., Green River, Wyoming.
L. E. Troeger, B. S. A., Storm Lake, Iowa.
Ruth Walker, B. D. S., 1330 1st St., Louisville, Kentucky.
L. C. Way, B. M. E., Carson, Iowa.
A. M. Weise, B. S. in E. E.
L. J. Wilkinson, B. M. E., 830 Harrison Ave., Beloit, Wisconsin.
Loretta Williams, B. S., Ames, Iowa.
T. R. Williams, B. S. in E. E., 703 7th St., Minneapolis, Minnesota.
Mary Wilson, B. S., Station A, Ames, Iowa.
C. W. Woodruff, B. C. E., Reno, Illinois.
L. W. Wilson, B. M. E., 274 Main St., Aurora, Illinois.
A. Wyman, B. M. E., 176 11th St., Milwaukee, Wisconsin.

SUMMARY OF GRADUATES.

		1906
Number of first degrees granted 1872-1906	1693	131

PRESENT COURSES.

Animal Husbandry Course, 1904-1906	56	18
Agronomy Course, 1905-1906	17	7
Horticultural Course, 1904-1906	10	5
Dairying Course, 1904-1906	14	4
Science and Agriculture Course, 1906	1	1
Veterinary, 1880-1906	145	4
Mechanical Engineering Course, 1872-1906	152	19
Civil Engineering Course, 1872-1906	228	27
Electrical Engineering Course, 1892-1906	167	22
Mining Engineering Course, 1897-1906	18	8
Science Course, as related to the Industries, 1875-1906	386	7
Domestic Science Course, 1906	1	1
General and Domestic Science Course, 1901-1906	53	8

COURSES DISCONTINUED.

Agricultural Course, leading to Degree B. S., 1872-1880	102	
Agricultural Course, leading to Degree B. S. A., 1883-1888 and 1899-1904	86	
Science and Agriculture Course, leading to Degree B. S., 1889-1890	45	
General Science Course for Ladies, 1872-1880, and 1904	48	
General and Domestic Science Course, leading to Degree of B. L., 1887-1899	93	
General and Domestic Science Course, leading to Degree B. Ph., 1899-1900	21	
Agronomy Course, leading to Degree B. Ag., 1891-1898	50	
	1693	131

Higher Degrees, 1872-1906	94	10
Master of Scientific Agriculture	30	6
Master of Science	31	2
Other Masters' Degrees	11	
Engineers	12	1
Honorary Degrees	6	1
Advanced Degrees in Veterinary	4	

ALPHABETICAL LIST OF ALUMNI.

NAME	CLASS
Abraham, J. G.	'88
Adams, C. B.	'92
Adams, H. W.	'99
Adamson, G. J.	'05
Adamson, M. C.	'98
Agg, Lois	'05
Agg, T. R.	'05
Ahlers, F. R.	'02
Ainsworth, F. W.	'88
Aitken, M. I.	'76
Alexander, Mabel	'83
Allen, A. M.	'83
Allen, J. B.	'88
Allen, J. R.	'99
Alvord, R. M.	'04
Anderson, A. O.	'06
Anderson, Edna	'84
Anderson, Hattie	'04
Anderson, I.	'04
Anderson, J. L.	'06
Anderson, Keo	'05
Anderson, Mildred	'96
Anderson, R. C.	'99
Andrews, A. G.	'83
Andrews, E. V.	'04
Angier, G. H.	'03
Angus, G. S.	'91
Anstey, J.	'05
Anthony, H. F.	'05
Armstrong, J. F.	'84
Armstrong, W. C.	'81
Arndt, Adele	'99
Arthur, J. C.	'72
Ashby, A. J.	'95
Ashby, J. B.	'05
Ashford, G. B.	'92
Ashworth, C. A.	'89
Aten, Mary	'95
Atkinson, A.	'04
Atkinson, R. W.	'06
Atkinson, W. D.	'82
Austin, F. W.	'93
Austin, H. C.	'06
Austin, H. D.	'04
Austin, J. C.	'02
Austin, R. G.	'04
Austin, W. H.	'91
Avey, H. T.	'05
Babbitt, H. K.	'06
Bacchus, J. E.	'06
Bailey, M. J.	'80
Baker, C. A.	'88
Baker, Florence	'95
Baker, J. A.	'89
Baker, R. L.	'06
Baldwin, A. F.	'02
Ball, C. R.	'96
Ball, E. D.	'95
Ballard, W. J.	'94
Ballreich, C. A.	'91
Banks, A. J.	'95
Banks, J. E.	'89
Banks, Mae	'97
Bannister, Nettie	'90
Barber, Florence	'02
Barclay, Josephine	'02
Barclay, R. W.	'98
Barger, Amanda	'98
Barger, Jennie	'98
Barger, May	'02
Barger, Mary	'97
Barker, A. P.	'76
Barnes, G. Z.	'87
Barrett, D. C.	'05
Barrows, Sarah	'91
Barstow, Genevieve	'79
Bartholomew, C. E.	'04
Bartholomew, C. L.	'88
Bartholomew, Ella	'88
Bartholomew, Ethel	'88
Bartholomew, Jean.	'05
Barton, Elva	'03
Battey, W. R.	'03
Beach, Alice	'92
Beach, Norma	'87
Beach, S. A.	'87
Beard, E. L.	'72
Beard, L. W.	'76
Beardshear, Hazel	'96
Beatty, Esther	'98
Bebout, Stella	'74
Beckwith, L.	'78
Bell, Edna	'84
Bell, J. D.	'02
Bell, Nellie	'81
Benjamin, B. R.	'93
Benjamin, R. B.	'92
Bennett, H. A.	'02
Bennett, L. P.	'00
Bennett, R. C.	'87
Benson, J. N.	'05
Beresford, A. M.	'81
Bergeman, C. A.	'97
Besser, E.	'87
Bevan, W. A.	'04
Bevington, Anna	'85
Bevington, T. F.	'84
Beyer, Jennie	'79
Beyer, Jennie	'92
Beyer, S. W.	'89
Bierbaum, E. C.	'97
Bigelow, C. Pearl	'94
Bisbee, D. B.	'89
Bishop, H. F.	'04
Bishop, J. A.	'90
Bishop, W. C.	'04
Bissell, P.	'03
Bitting, A. W.	'95
Blaine, Estella	'92
Blaine, J. A.	'82
Blair, Anna	'92
Blair, R. A.	'03
Blakemore, J. F.	'96
Blanche, G. W.	'02
Blanche, R. J.	'95
Bliss, R. K.	'05
Blochman, Ida	'78
Blodgett, A. M.	'76
Blodgett, Julia	'76
Blumer, J. C.	'01
Boardman, C. D.	'74
Boardman, Ida	'75
Boddy, F.	'80
Bolks, H. B.	'99
Bolles, W. E.	'90
Bone, F. S.	'00
Bonnell, E. N.	'96
Bonnell, Irene	'98
Bonnell, J. N.	'98
Bonwell, Leora	'98
Booth, F. W.	'77
Borsheim, T. B.	'04
Bosquet, A. E. D.	'89
Bossingham, O.	'94
Bothell, F.	'05
Botsford, W. C.	'05
Boudinot, A. R.	'05
Bouska, F. W.	'97
Boutelle, E. C.	'93
Bowen, H.	'94
Bowen, M. R.	'06
Bower, Mae	'03
Bower, W. C.	'02
Bowie, C. S.	'85
Bowie, S. D.	'94
Bowman, M. L.	'05
Boyd, Emma	'92
Boyd, G. R.	'06
Boyd, O. A.	'98
Bozarth, H.	'98
Bradford, J. W.	'86
Bradford, S.	'88
Bradley, Blanche	'94
Bradley, Rose	'05
Bramhall, J. A.	'90
Brandt, Iva	'05
Brandvig, A.	'88
Brandvig, M.	'90
Breckon, Susa	'00
Brewer, G. S.	'97

NAME	CLASS
Brhel, J. W.	'03
Bridges, E. F.	'06
Briggs, D. D.	'80
Brintnall, E. P.	'06
Bristol, C. J.	'98
Brock, W. I.	'04
Brockhausen, C.	'95
Brooks, G. W.	'99
Brown, A.	'97
Brown, C. E.	'93
Brown, E.	'92
Brown, Florence	'78
Brown, F. E.	'06
Brown, F. J.	'91
Brown, F. L.	'04
Brown, F.	'02
Brown, G.	'92
Brown, H. F.	'98
Brown, J. C.	'98
Brown, J. F.	'03
Brown, Josephine	'03
Brown, L. G.	'85
Brown, Nellie	'04
Brown, O. B.	'80
Brown, O. L.	'04
Brown, Olive	'98
Brown, P. H.	'03
Brown, P. S.	'72
Brownlie, I. C.	'95
Brunnier, H. J.	'04
Bruntlett, Edith	'04
Bruntlett, E. H.	'04
Bryan, W. A.	'96
Buchanan, C. C.	'03
Buchanan, R. E.	'04
Buchli, B.	'86
Buck, Leon	'03
Buckley, A. R.	'04
Buckman, H. O.	'06
Budd, Etta	'82
Budge, B.	'05
Budrow, W. B.	'89
Buell, J. A.	'05
Buffington, G. L.	'88
Bullock, C. F.	'05
Bunker, J. W.	'00
Burdess, W. J.	'94
Burke, R.	'78
Burke, T.	'81
Burling, Alice	'79
Burnham, Ena	'98
Burnham, G. M.	'83
Burnip, J. R.	'97
Burns, P. S.	'86
Burton, J. H.	'04
Butler, Della	'00
Butts, D. J.	'03
Byl, F. M.	'03
Cadwell, E. P.	'75
Cadwell, Hannah	'75
Cammack, A.	'05
Campbell, Alfa	'77
Campbell, Clare	'99
Campbell, Claude	'04
Campbell, Effie	'95
Campbell, F. H.	'94
Campbell, Grace	'02
Campbell, G. R.	'06
Campbell, Ida	'94
Campbell, Iowa	'94
Campbell, J. R.	'02
Campbell, Mabel	'05
Campbell, W. L.	'94
Canady, C. M.	'87
Carey, Emma	'87
Carlson, W. G.	'94
Carpenter, Mary	'77
Carpenter, Mary H.	'77
Carson, Luberta	'83
Carter, Carrie	'79
Carter, D. M.	'91
Carter, G. L.	'02
Carter, L. E.	'06
Carver, G. W.	'94
Cary, C. A.	'85
Cassidy, G. R.	'05
Catt, Carrie	'80
Catt, G. W.	'82
Caughey, J. W.	'05
Caughey, R. I.	'06
Caulkins, Ida	'75
Caven, G.	'83
Cave, C. R.	'95
Cave, R. A.	'06
Cessna, Ethyl	'04
Cessna, F.	'05
Cessna, O. H.	'72
Chalupnik, J.	'06
Chamberlain, H.	'89
Chamberlain, J.	'90
Chambers, Hazel	'96
Chambers, Viola	'05
Chapman, Carrie	'80
Chase, C. S.	'74
Chatburn, G. R.	'84
Chatterton, H. L.	'86
Chattin, A. B.	'03
Cherrie, Millah	'75
Chestek, Alene	'93
Chiles, G. S.	'06
Christie, E. J.	'87
Christie, G. I.	'03
Christie, Inez	'92
Christman, Jennie	'83
Christy, G. L.	'91
Churchill, S. A.	'72
Clark, C. J.	'84
Clark, G. C.	'98
Clark, Ida	'94
Clark, S. B.	'87
Clarke, C. C.	'91
Claussen, L. A.	'76
Claybaugh, W. C.	'05
Cleave, Luberta	'83
Cleaver, Malinda	'79
Cleghorn, Frances	'02
Cleghorn, J. C.	'03
Cleghorn, M. P.	'02
Clements, C. W.	'06
Clingan, C. E.	'74
Clingan, E. R.	'74
Clinton, E. E.	'92
Clough, S. D.	'86
Clyde, R. W.	'05
Coates, A. B.	'05
Coates, L. E.	'06
Cobbey, J. E.	'76
Coe, C. M.	'81
Coe, Mary	'82
Coffey, R. C.	'05
Cogswell, D. H.	'06
Cohn, Elizabeth	'98
Colby, F. E.	'81
Colclo, C. C.	'77
Colclo, Virginia	'83
Cole, Agnes	'96
Cole, C. G.	'06
Cole, Mildred	'05
Cole, O. R.	'97
Cole, W. B.	'06
Collett, R. L.	'05
Collier, D. B.	'85
Collier, Lydia	'85
Collins, D. E.	'85
Collins, W. S.	'76
Collison, F. P.	'06
Colton, G. H.	'87
Combs, R.	'96
Cook, A. L.	'05
Cooley, F. H.	'89
Cooper, D. G.	'93
Cooper, Margaret	'98
Cooper, R. D.	'05
Cooper, W. R.	'94
Cooper, W. R.	'92
Corbett, Virginia	'93
Corlette, Bernice	'04
Corlette, G. H.	'04
Corry, E. C.	'92
Cotey, C. J.	'87
Cottrell, Mae	'91
Cotton, Ernest	'04
Cox, Mary	'91
Cox, R. L.	'05
Coye, J. S.	'02
Craig, Fannie	'94
Craig, J.	'98
Craig, L. B.	'94
Craig, R. A.	'97
Crane, M. D.	'01
Crawford, C. J.	'05
Crawford, Esther	'87
Crawford, J. W.	'95
Crocker, T. F.	'03
Crosby, H. E.	'90
Crossley, Mary	'97
Crossman, Marilla	'81
Crouse, F. H.	'04
Crouse, R. W.	'06
Croy, Lillie	'79
Culver, Alice	'75
Culver, Genevieve	'92
Cumming, M.	'00
Cummins, W. M.	'03
Cunningham, Alice	'75
Currie, C. H.	'05
Curtiss, Fannie	'94
Curtis, Kate	'77

NAME	CLASS
Curtis, Lizzie	'75
Curtiss, C. F.	'87
Curtiss, Effie	'95
Curtiss, Ella	'94
Curtiss, Gertrude	'04
Curtiss, G. W.	'83
Curtiss, J. F.	'05
Curtiss, Olive	'87
Curtiss, R. S.	'05
Cutler, G. C.	'05
Cutler, J. L.	'05
Cutler, Laura	'95
Damon, Olive	'97
Damon, P. E.	'97
Dana, G. G.	'97
Danforth, H. G.	'04
Daniels, P. H.	'05
Danielson, J. G.	'95
Daugherty, J. E.	'84
Davidson, C. D.	'90
Davidson, F. E.	'93
Davidson, J. G.	'88
Davidson, Jessie	'05
Davidson, J. R.	'95
Davidson, Mary	'05
Davidson, O.	'97
Davis, Elsie	'99
Davis, H.	'92
Davison, E. T.	'95
Day, C. M.	'93
Day, H. B.	'89
Day, W. E.	'00
Dean, Anna	'92
Dean, H. G.	'05
Deering, C. C.	'92
Deering, J. W.	'99
Deming, C. W.	'00
Derr, Ella	'94
Deshler, W. E.	'05
Devine, W. J.	'98
Dewell, Ada	'90
Dewell, J. S.	'81
Dewell, W. C.	'90
Dickey, S. H.	'72
Dickey, W. P.	'84
Dickinson, E. C.	'94
Dietz, C. N.	'72
Diller, L. L.	'00
Dimmitt, H. G.	'03
Dinsmore, W.	'04
Dissmore, Ella	'76
Dixon, C. O.	'04
Dobbin, F. L.	'88
Dodd, T. W.	'03
Dodds, W. V. A.	'82
Dodge, C. A.	'81
Dodge, G. F.	'98
Dodge, H. K.	'03
Dodge, M. V.	'05
Donovan, D. E.	'03
Doty, H. L.	'06
Douglas, E.	'93
Dow, Ora	'99
Down, Ella	'00
Downing, Jennie	'93
Doxsee, C. M.	'83
Doxsee, Gwendolen	'97
Doxsee, J. W.	'77
Dreher, I. A.	'04
Dudley, Winifred	'76
Dudley, W. M.	'82
Dumphey, Florence	'02
Duncan, Ruth	'95
Duncan, W. S.	'98
Dunham, B. G.	'96
Durkee, J. E.	'89
Duroe, C. R.	'95
Duroe, E. M.	'93
Duroe, L. A.	'97
Dyer, H. E.	'98
Dyer, Mary	'06
Dyer, R. M.	'91
Dykstra, R. R.	'05
Eastman, W. R.	'06
Eastwood, Maude	'00
Eaton, E. N.	'90
Ebersole, H. N.	'03
Eck, W. J.	'95
Eckles, C. H.	'95
Eckles, Ena	'98
Eckles, H. C.	'01
Eckles, H. L.	'99
Eckles, R.	'96
Edgerton, J. J.	'96
Edgett, Ora	'99
Edson, Rowena	'73
Edson, W. C.	'98
Edwards, Lizzie	'75
Egger, C. A.	'00
Ehlers, G. L.	'99
Eiler, D. W.	'04
Elder, A. E.	'03
Ellenberger, H.	'05
Elliott, C.	'02
Elliot, J. W.	'96
Ellis, Ada	'98
Ellis, C. E.	'00
Ellis, Estella	'00
Ellis, J. A.	'05
Ellis, Pearl	'05
Ellis, Sadie	'98
Elwell, F. D.	'02
Elwell, F. N.	'02
Elwood, W. D.	'06
Emery, C. U.	'92
Epley, A. C.	'05
Estes, Lottie	'83
Evans, Arthur	'04
Evans, Bertha	'03
Evans, H. J.	'98
Evans, Winifred	'94
Eveland, P.	'03
Evinger, M. I.	'06
Fair, D. H.	'05
Fairfield, R. H.	'93
Farnum, R. A.	'06
Farr, Kate	'93
Farwell, Mary	'77
Farwell, M. Z.	'86
Fassett, Alfa	'77
Faurot, F. W.	'00
Faville, Edith	'94
Faville, E. E.	'93
Faville, F. F.	'98
Faville, G. C.	'79
Faville, Malinda	'79
Fawcett, H. S.	'05
Fay, Helen	'97
Fay, Oliver J.	'98
Fedson, Jennie	'06
Fegles, D. B.	'05
Fegtley, J. J.	'76
Fellows, L. Mae	'97
Fellows, Mary	'90
Felt, A. C.	'87
Felton, J. T.	'02
Fenstermaker, S. E.	'05
Ferguson, C. W.	'87
Fibbs, Nettie	'96
Field, F. N.	'79
Finnigan, C. A.	'88
Fish, D.	'06
Fitch, T. T.	'03
Fitz, S. R.	'94
Fitzwater, W. D.	'01
Fleming, Annie	'94
Flora, G.	'88
Flower, G. R.	'73
Flynn, C. H.	'83
Flynn, J. P.	'05
Flynn, Melissa	'06
Fogel, Estella	'03
Folger, L. H.	'05
Ford, C. H.	'06
Ford, Mildred	'05
Forde, Margaret	'98
Forrest, J.	'05
Fortner, E. C.	'81
Foster, A. H.	'95
Foster, Edith	'96
Foster, G. S.	'92
Foster, Lizzie	'75
Foster, L.	'72
Foster, W. L.	'06
Fowler, Myrtle	'96
Frandson, J. H.	'02
Frandson, Mathilda	'06
Franklin, E.	'98
Franklin, O. S.	'98
Fraser, Jessie	'05
Fraseur, Edith	'06
Frater, Jessie	'83
Frater, W. H.	'87
Frechtling, C. H.	'05
Frederick, H. J.	'05
Freed, Kittie	'92
Freeland, Jessie	'92
French, Ella	'96
French, F. C.	'96
Friend, F. H.	'79
Frisbee, J. B.	'95
Fritzel, H. O.	'99
Fry, S. A.	'06
Fuller, H.	'72
Fuller, Q. C.	'90
Fulton, W. L.	'06
Furrow, R. A.	'06
Furry, F. E.	'81

NAME	CLASS
Furry, M. J.	'81
Fyler, L. S.	'05
Gabel, Hermine	'84
Gable, H. J.	'82
Gabrielsen, Carolyn	'05
Galley, J. H.	'05
Galloway, J.	'98
Galloway, T.	'98
Galpin, Kate	'74
Gambell, V. C.	'86
Gamble, W. E.	'86
Garberson, J. H.	'04
Garberson, W. C.	'97
Garrett, L. M.	'84
Garver, H. F.	'01
Garver, N. B.	'05
Gasson, J. H.	'93
Gaston, Belle	'90
Gault, Jennie	'81
Gay, C. W.	'05
Gaylord, L. T.	'04
Gearhart, Celestia	'75
Gearhart, G. S.	'03
Geddes, T. A.	'90
Gemmill, W. H.	'94
George, Edith	'06
Georgen, Anna	'94
Gerard, G. A.	'76
German, B.	'95
Gersbach, E. C.	'04
Gersbach, O.	'97
Gess, Kate	'92
Giffen, Lucy	'99
Gifford, Margaret	'93
Gilbert, E. P.	'92
Gilbert, Fannie	'99
Gilchrist, W. D.	'05
Gill, J. W.	'84
Gillespie, J. L.	'99
Gillespie, L.	'05
Gillette, Opal	'05
Gillette, R. U.	'05
Gillis, R. H.	'06
Gilmore, W. T.	'76
Gladson, W. N.	'88
Glaisyer, A. R.	'99
Glenn, Emma	'78
Glenn, H. L.	'78
Glover, G. H.	'85
Goble, Katherine	'99
Goble, R. D.	'99
Goble, Rose	'05
Goddard, C.	'95
Goodman, L. M.	'96
Goodnow, Anna	'85
Goodnow, G. F.	'85
Gordon, W. M.	'05
Goss, H. D.	'03
Gossard, H. A.	'89
Gossard, W. E.	'95
Gould, H. J.	'06
Gould, J. H.	'02
Goulden, R. S.	'06
Govier, G. S.	'87
Graham, A. L.	'89
Graham, J. M.	'90
Graham, R.	'04
Graham, R. F.	'02
Granger, E. E.	'99
Granger, K. H.	'88
Grant, Nellie	'03
Grant, T. S.	'98
Grattan, Vinnie	'93
Graves, F. H.	'87
Gray, C.	'04
Gray, C. E.	'01
Gray, E.	'85
Gray, H. W.	'06
Gray, Rachel	'04
Greeley, Blanch	'97
Green, B. F.	'89
Green, E. F.	'93
Green, W.	'73
Greene, G. W.	'86
Greene, M.	'05
Greer, Floy	'06
Gregg, Alice	'77
Grettenberg, H.	'98
Gribben, R. L.	'06
Griffith, A. E.	'78
Griffith, C. J.	'99
Griffith, W. I.	'99
Griffith, Zadie	'05
Grisdale, J. H.	'98
Grover, W. H.	'98
Grow, W. A.	'85
Grubb, V.	'05
Guernsey, I. L.	'93
Guibert, O. E.	'06
Gunn, G. D.	'95
Guthrie, E. S.	'05
Guthrie, G. B.	'06
Guthrie, J. C.	'06
Gyde, J. E.	'88
Haecker, A. L.	'00
Hainer, Addie	'84
Hainer, B. T.	'84
Hainer, Florence	'88
Hainer, Hermine	'84
Hainer, Julia	'76
Hainer, J. C.	'78
Hainer, Norma	'87
Hakes, M.	'80
Hall, E. H.	'01
Hamerly, F.	'04
Hammer, M. J.	'98
Hancock, Emma	'02
Hanford, Julia	'81
Hanger, S. M.	'02
Hansen, E.	'94
Hansen, Emma	'94
Hansen, F. N.	'04
Hansen, N. E.	'87
Hanson, A. L.	'79
Hanson, Carrie	'79
Hanson, H. B.	'06
Hanson, Lillian	'03
Hanssen, H. M.	'06
Harden, G. W.	'95
Hardin, D. S.	'80
Hardin, J. F.	'76
Hardin, Mary	'77
Hardy, May	'90
Hargrove, A. P.	'77
Harlow, Ellen	'76
Harpel, Kate	'90
Harpel, L. V.	'87
Harriman, W. E.	'93
Harris, E. N.	'06
Hart, C. E.	'93
Hartman, C. A.	'97
Harvey, E. D.	'80
Harvey, F. L.	'72
Harvey, G. W.	'73
HasBrouck, Hattie	'00
Haselton, P. H.	'04
Haselton, W. R.	'05
Hassett, J.	'80
Hastings, C. P.	'74
Haugeberg, Grace	'93
Haven, S.	'90
Havenhill, Alice	'04
Havenhill, Mark	'04
Hawkins, A. M.	'73
Hays, Bertha	'94
Hays, W. M.	'85
Hayter, R. O.	'99
Heald, G. D.	'97
Heberling, C. A.	'06
Heck, W. A.	'91
Heckard, C. J.	'98
Hedges, S. H.	'86
Heileman, W. H.	'91
Heisey, C. J.	'06
Helmer, A. C.	'95
Helsell, W. A.	'77
Henderson, Ella	'88
Henderson, O. J.	'98
Hendrix, W. W.	'03
Henely, E.	'90
Henry, A. E.	'84
Henry, E.	'92
Hensen, E.	'94
Hensen, P.	'00
Hensen, W. R.	'89
Herring, W. E.	'93
Hess, Alice	'99
Hibbard, B. H.	'98
Hibbard, Stella	'05
Hibbs, G. B.	'84
Hicks, W. C.	'92
Hidinger, L. L.	'06
Higgins, E. C.	'02
Hill, E. N.	'85
Hinds, R. E.	'91
Hitchcock, A. E.	'76
Hitchcock, A. S.	'84
Hitchcock, M. M.	'78
Hobein, C. A.	'03
Hodgkins, R. T.	'93
Hodson, E.	'98
Hodson, L. C.	'99
Hodson, Margaret	'93
Hodson, R. F.	'91
Hofacre, F. F.	'05
Hoffman, A. H.	'05
Hoggatt, T. V.	'79
Hogon, Dolly	'98

NAME	CLASS
Holden, A. C.	'04
Hollenbeak, R. H.	'98
Hollingsworth, D. E.	'99
Hook, J. W.	'05
Hook, Sarah	'98
Hopkins, A. G.	'99
Hopkins, H. S.	'01
Hopkins, Josephine	'03
Hopkins, Richard	'03
Hopkins, R.	'81
Horn, A. R.	'05
Horner, J. F.	'01
Horning, J. C.	'99
Hosford, D. M.	'95
Hoskins, F. W.	'87
Houck, E. C.	'03
Houghton, W. A.	'00
Hovland, O. C.	'01
Howard, Carlotta	'06
Howard, C.	'05
Howard, E. R. T.	'03
Howard, H. H.	'06
Howard, T. S.	'90
Howe, Ruthella	'03
Hoyt, A. W.	'94
Hudson, E. P.	'91
Hudson, Jessie	'93
Hull, M. R.	'98
Hume, H. H.	'99
Hummel, J. G.	'02
Humphrey, E. W.	'99
Hungerford, E. M.	'72
Hungerford, J. B.	'77
Hunt, C. W.	'88
Hunt, T. S.	'03
Hunt, W. N.	'77
Hunt, W. S.	'05
Hunter, Cora	'86
Hunter, R. M.	'83
Hunter, W. B.	'86
Hunter, Winifred	'94
Huntley, F. A.	'84
Hursey, G. W.	'93
Hursey, G. W.	'93
Hursey, Maud	'96
Hurst, Lillian	'95
Hurst, N. C.	'95
Hurst, W. H.	'02
Hurt, Effie	'03
Hurt, L. M.	'04
Hutchins, I. W.	'06
Hutchinson, D. L.	'85
Hutchison, C. S.	'95
Hutchison, Nina	'03
Hutton, Hannah	'85
Hutton, T. B.	'91
Hyde, E. A.	'03
Hyde, J.	'79
Hyland, M. S.	'99
Hytland, Thyra	'02
Ickis, L. S.	'06
Igo, W. S.	'87
Ingels, J. F.	'06
Ireland, W. A.	'04
Jackson, L. D.	'85
Jackson, Mae	'06
Jackson, W. H.	'91
Jacobson, B. C.	'05
James, Belle	'90
James, J. A.	'93
James, W. M.	'76
Jarnagen, M. P.	'05
Jeffs, R. E.	'06
Jenkins, A. T.	'02
Jenkins, J.	'06
Jenks, Ada	'02
Jenks, Frances	'02
Johnson, Ada	'98
Johnson, A. P.	'86
Johnson, C. P.	'96
Johnson, C. W.	'91
Johnson, Della	'00
Johnson, E. M.	'98
Johnson, E. S.	'86
Johnson, F. A.	'06
Johnson, G. A.	'86
Johnson, I. B.	'95
Johnson, M. E.	'85
Johnson, Nellie	'89
Johnson, Olla	'06
Johnson, Pearle	'04
Johnson, R.	'95
Johnson, S. P.	'00
Johnson, W. L.	'00
Johnston, Hannah	'97
Jolls, R.	'06
Jones, E.	'05
Jones, E. D.	'92
Jones, Emma	'92
Jones, I. W.	'03
Jones, Irene	'98
Jones, J. F.	'93
Jones, J. S.	'03
Jones, Margaret	'97
Jones, W. C.	'91
Jones, W. M.	'97
Jordan, J. W.	'04
Jordan, R. F.	'77
Jorgenson, F. F.	'05
Jorgenson, J. P.	'06
Jory, E. N.	'06
Joseph, W. S.	'97
Kaufman, E. E.	'92
Kearney, E. J.	'93
Kearney, Ella	'93
Kegley, Birdie	'00
Kegley, C. H.	'83
Keith, Cora	'77
Keith, R.	'02
Kelly, R. P.	'75
Kelly, W. T.	'02
Kelsey, J. A.	'89
Kelsey, L. E.	'06
Kelsey, Susa	'00
Kempf, G. P.	'03
Kennedy, May	'05
Kennedy, W. J.	'99
Kenny, G. R.	'06
Kent, D. A.	'73
Kent, F. L.	'93
Kerr, T. S.	'90
Ketchum, Esther	'98
Ketterer, G. A.	'93
Kiesel, G. W.	'74
Kibbey, R. C.	'06
Kimball, C. F.	'89
King, Edna	'04
King, E. L.	'77
King, E. S.	'91
King, Eleanor	'91
King, M. L.	'06
King, R. E.	'97
Kingkade, Eva	'04
Kingsbury, Anna	'98
Kinzer, R. J.	'01
Kirkpatrick, E.	'87
Knapp, A.	'92
Knapp, Helen	'97
Knapp, H.	'83
Knapp, Mary	'83
Knapp, Minnie	'83
Knesche, J. A.	'05
Knickerbocker, B.	'94
Knickerbocker, C. J.	'05
Knight, Addie	'00
Knorr, G. W.	'85
Knowles, H. H.	'04
Knox, W. H.	'06
Kohler, A. R.	'06
Kolling, A.	'98
Krater, Kate	'73
Kreger, E. A.	'90
Kreger, H. R.	'94
Kribs, E. P.	'97
Kuehl, Florence	'93
Kuehl, G. A.	'93
Kyle, J. C.	'98
Labberton, G. P.	'05
Lamb, W. E.	'01
Lambert, Cora	'90
Lambert, F. L.	'84
Lamborn, C. W.	'89
Lamoreaux, W. R.	'75
Landon, R. R.	'96
Landsberg, A.	'03
Langfitt, H. J.	'86
Langfitt, Lizzie	'86
Langfitt, W. G.	'94
Langlass, C. F.	'96
Larsen, C.	'02
Larson, C. W.	'06
Larson, E. V.	'04
La Rue, Kate	'98
Lasher, A. C.	'03
Lathrop, H. A.	'06
Lathrop, J. C.	'01
Lawrence, C. W.	'06
Lawrence, Stella	'96
Lazell, F. J.	'95
Leathers, W. H.	'99
Le Buhn, C. E.	'97
LeClere, E. G.	'00
Lee, C. G.	'94
Lee, C. H.	'75
Lee, C. J.	'85
Lee, E. E.	'02
Lee, J. S.	'73
Lee, Lillie	'79

NAME	CLASS
Lee, T. F.	'78
Leefers, O. L.	'05
Leffler, G. V.	'04
Lentner, Sybil	'00
Leverett, F.	'85
Lewis, C. C.	'95
Lewis, F. N.	'98
Lewis, H. T.	'95
Lewis, J. W.	'95
Lewis, L. L.	'95
Lewis, M.	'00
Lewis, O. E.	'05
Liegrot, C. P.	'99
Lightner, F. L.	'88
Lincoln, C. S.	'94
Lincoln, W. B.	'93
Linebaugh, F. W.	'97
Linklater, W. A.	'03
Linn, S.	'94
Lipes, J. C.	'85
Litteer, M. C.	'74
Littell, F. A.	'92
Little, E. E.	'98
Little, Myrtle	'96
Locke, Mattie	'72
Lockwood, J. C.	'85
Lockwood, Nora	'96
Lofstedt, O. B.	'04
Lorbeer, C. I.	'82
Lorbeer, Mary	'82
Louthan, G. W.	'95
Love, J. B.	'98
Lowe, J.	'00
Lowery, F. R.	'98
Ludwig, H. J.	'02
Lummis, G. M.	'03
Lund, J. P.	'99
Lundeen, H. L	'06
Lungren, O. E.	'06
Lusk, W. C.	'93
Lyford, F. R.	'95
Lyford, L. L.	'04
Lyman, Hannah	'75
Lynch, W. J.	'05
Lytle, W. H.	'02
Maben, C. B.	'73
Mabie, I. P.	'06
MacDonald, T. H.	'04
MacGregor, A. H.	'06
Macomber, F. J.	'75
Macomber, J. K.	'72
Macomber, Mattie	'72
Macy, E. C.	'96
Macy, Minta	'97
Madsen, J.	'01
Madson, Mathilda	'06
Madson, W. E.	'05
Maguire, Erna	'99
Maguire, J. A.	'93
Maguire, Mary	'96
Maguire, Nellie	'95
Maguire, P. J.	'93
Mahanke, C.	'05
Maharg, E.	'05
Mahoney, T. J.	'96
Malcolm, Elsie	'99
Malcolm, June	'99
Mally, C. W.	'92
Mally, F. W.	'87
Mally, Marie	'03
Mann, Alice	'90
Mann, Bertha	'90
Manville, B. W.	'93
Manwaring, L. L.	'79
Marsden, W. A.	'06
Marsh, F. H.	'04
Marsh, G. E.	'74
Marsh, Ione	'84
Marsh, J. B.	'82
Marshall, F. H.	'00
Marshall, M. F.	'73
Marston, W. S.	'99
Martin, C. B.	'78
Martin, C. G.	'02
Martin, Florence	'78
Martin, W. H.	'03
Mason, W.	'96
Mast, T. W.	'97
Mast, W. H.	'00
Matthews, F.	'96
Matthews, F. G.	'04
Maxwell, Jessie	'92
Maxwell, W. D.	'06
Mayo, Minnie	'83
McBirney, J.	'89
McBirney, J. F.	'02
McCain, P. L.	'05
McCall, C. A.	'93
McCall, F. B.	'93
McCampbell, A. K.	'05
McCarthy, Clarice	'92
McCarthy, O. E.	'87
McCarthy, W.	'92
McClain, F. L.	'03
McClanahan, W. A.	'91
McClelland, A.	'89
McClure, Fay	'03
McClure, H. B.	'02
McConnon, Anna	'85
McConnon, F.	'97
McConnon, W. G.	'79
McCord, E. S.	'92
McCoy, L. F.	'85
McCrary, Jennie	'98
McCray, O. P.	'74
McCready, W. R.	'95
McCullough, M. E.	'05
McCusker, Clare	'99
McCusker, C. J.	'98
McCuskey, Elizabe'h	'88
McDill, W.	'00
McDonald, E. A.	'82
McDonald, Mary	'83
McElroy, W. O.	'81
McElyea, Jennie	'79
McGavren, J. S.	'81
McGavren, Nellie	'81
McGrew, C. H.	'80
McHenry, Emma	'78
McHenry, W. H.	'81
McIntire, H. A.	'02
McKay, W. G.	'98
McKim, G. E.	'93
McKim, J. R.	'82
McKimm, Effie	'03
McKinley, A. D.	'00
McKinley, Ethel	'05
McKinney, R. C.	'02
McKinney, R. F.	'04
McKinnon, A.	'94
McKinnon, D.	'78
McKinzie, Ellen	'76
McLain, Stella	'96
McLaughlin, A. A.	'89
McLaughlin, E. M.	'94
McLaughlin, J. J.	'90
McLean, C. H.	'96
McLean, J. A.	'05
McManus, Florence	'95
McMillan, R.	'04
McNaughton, Clarice	'92
McNaughton, L. D.	'91
McNeill, Kate	'83
McNeill, Mary	'95
McPherson, R. W.	'06
McQuiston, F. H.	'99
McWilliams, G. B.	'97
McWilliams, Pearl	'98
Mead, Ella	'76
Mead, E.	'83
Meade, I. J.	'96
Meek, W. H.	'98
Meeker, R.	'98
Meinzer, W. L.	'94
Meiser, F.	'06
Meissner, G. L.	'88
Meissner, J.	'94
Meissner, J. A.	'89
Melhus, I. E.	'06
Mellinger, A. E.	'95
Meredith, Francis	'92
Meredith, J. C.	'78
Mereness, G. N.	'04
Merrill, I. J.	'93
Merrill, Nellie	'82
Merritt, Alice	'02
Merritt, M. L.	'04
Metcalf, Edith	'99
Meyers, J. H.	'95
Middleton, W. G.	'05
Milburn, W. P.	'92
Miles, C. L.	'93
Miller, A. A.	'04
Miller, A. M.	'83
Miller, F. G.	'01
Miller, G. I.	'77
Miller, G. W.	'03
Miller, G. P.	'92
Miller, H. M.	'06
Miller, J. C.	'94
Miller, Mae	'02
Miller, O. H.	'04
Miller, W. E.	'02
Mills, Ada	'90
Mills, C. C.	'96

NAME	CLASS
Mills, Ethel	'99
Mills, Grace	'93
Mills, Lillian	'95
Mills, R. C.	'98
Mills, S. B.	'96
Milnes, J. C.	'77
Minert, T. R.	'04
Minkler, F. C.	'05
Mirick, Kate	'77
Moffett, R. H.	'04
Molison, R. C.	'92
Money, F. B.	'06
Moody, L. C.	'04
Moore, H. G.	'94
Moore, H. I.	'06
Moore, J. A.	'95
Moore, J. H.	'91
Moore, L. H.	'03
Moorehouse, O.	'03
Morgan, C.	'02
Morgan, D. W.	'98
Morphy, Elizabeth	'97
Morris, C. C.	'05
Morris, L.	'04
Morris, S. W.	'89
Morrison, Elizabeth	'88
Morrison, Ethelda	'02
Morrison, Jennie	'92
Morrison, J.	'97
Morrison, Margaret	'05
Morrison, Ruth,	'99
Morrison, Sophia	'00
Morrison, W. E.	'84
Morse, Hattie	'73
Morse, Stella	'74
Morton, Ella	'93
Mosher, Agnes	'05
Mosier, M. L.	'05
Mosier, A. G.	'85
Mosier, Bertha	'94
Mosier, M.	'06
Mosier, Rachel	'04
Moss, B. N.	'91
Moss, Eleanor	'91
Moulton, Laura	'88
Mount, C. F.	'78
Muhs, F. R.	'92
Muhs, L. R.	'02
Muncey, Jessie	'83
Muncey, J. N.	'78
Munns, C. K.	'93
Munns, Hala	'94
Munro, W. S.	'04
Murphy, W. A.	'94
Myers, Alice	'99
Myers, E. C.	'01
Myers, W. R.	'86
Nash, C. W.	'05
Neal, Alice	'77
Neal, Celestia	'75
Neal, Della	'82
Nelson, F. O.	'05
Nelson, Hulda	'95
Nelson, J. C.	'03
Nelson, M.	'06
Nelson, S. B.	'89

NAME	CLASS
Nesom, G. E.	'98
Ness, H.	'05
Newcom, R.	'04
Newell, Belle	'89
Newell, W.	'97
Nicholas, Nellie	'00
Nichols, Anna	'85
Nichols, E. J.	'84
Nichols, Fay	'99
Nichols, H. N.	'93
Nichols, I. A.	'89
Nichols, Mary	'91
Nichols, S. S.	'05
Nichols, T. E.	'02
Nicholson, R. M.	'80
Nicoll, G. D.	'99
Nicoll, T. E.	'99
Niles, E. P.	'86
Niles, W. B.	'85
Noble, J. C.	'79
Norman, A. J.	'06
Norman, L.	'03
Norton, C. W.	'03
Norton, J. C.	'90
Norton, Mildred	'96
Norton, O. G.	'85
Nowlan, B. C.	'00
Nowlan, E. R.	'02
Noyes, Ida	'74
Noyes, L.	'72
Nye, H. V.	'06
Obrecht, R. C.	'01
Ogden, K. R.	'06
Oggel, E. C.	'91
O'Hearn, J. L.	'04
Okey, F. M.	'04
Oliver, W. J.	'95
Olmsted, R. W.	'90
Oppenheim, R.	'05
Orr, Edith	'96
Orr, M. J.	'95
Osborne, A. E.	'87
Osborn, Alice	'81
Osborn, G. M.	'84
Osborn, H.	'79
Otis, Mary	'89
Otis, W. H.	'04
Otto, W. W.	'02
Overholser, Alice	'04
Overholser, F. E.	'03
Overholser, Pearl	'05
Overholser, Winifr'd	'05
Owens, Mabel	'95
Paddock, Estella	'00
Page, H. L.	'72
Page, M. L.	'05
Paine, E. K.	'88
Palmer, H.	'00
Palmer, Mary	'74
Palmer, R. R.	'06
Palmer, T. L.	'75
Pammel, Emma	'94
Parker, F.	'00
Parker, Jessie	'98
Parkhill, Florence	'93
Parks, Alice	'02

NAME	CLASS
Parks, H. M.	'03
Parks, P. C.	'04
Parsons, A. A.	'74
Passig, Sarah	'98
Patch, J. W.	'06
Patrick, H. R.	'75
Patten, J. H.	'82
Pattengill, E. A.	'97
Patterson, Belle	'89
Patterson, G. W.	'97
Patton, D. W.	'93
Patton, T. J.	'05
Patty, Cora	'77
Patty, L. G.	'87
Paull, Eva	'74
Paxton, Gertrude	'04
Paxton, I. B.	'05
Paxton, J.	'87
Payne, Cora	'77
Pechstein, P. T.	'06
Pendray, E. E.	'05
Perley, J. A.	'87
Perrett, Hattie	'82
Perrett, Jennie	'81
Perrett, Lizzie	'82
Perrin, A. J.	'98
Perrin, C. M.	'99
Perry, E. D.	'98
Persons, Nora	'94
Peshak, E.	'01
Peshak, R. E.	'03
Peters, A. A.	'94
Peterson, A. L.	'05
Peterson, C. A.	'06
Peterson, C. E.	'75
Peterson, E. C.	'04
Peterson, G. C.	'05
Peterson, O. C.	'82
Peterson, W. A.	"87
Pettinger, Celestine	'05
Pew, G. V.	'04
Phelps, F. S.	'92
Phillips, P. D.	'04
Pielsticker, F. A.	'04
Pierce, Bertha	'03
Pierce, Cora	'77
Pike, Hattie	'01
Pishel, M. A.	'06
Pitman, F. L.	'84
Placeway, Lola	'95
Platt, J. H.	'89
Plitt, J. H.	'06
Plumley, H.	'05
Poage, L. S.	'04
Pool, C. O.	'96
Pope, J. G.	'85
Porter, B. E.	'05
Porter, Emma	'85
Porter, H. R.	'01
Porter, Hattie	'00
Porter, J. F.	'84
Porter, Kate	'92
Porterfield, Lillian	'96
Pos, M. J.	'98
Prather, C. M.	'05
Preston, E. G.	'98

NAME	CLASS
Preston, H. L.	'96
Preston, J. M.	'95
Price, A. M.	'94
Price, Lavenia	'93
Priem, Mae	'02
Prouty, Helen	'05
Prusia, Jeannette	'99
Pyne, E. A.	'74
Quint, A. U.	'85
Quint, Violet	'90
Quint, Virginia	'83
Radnich, Helen	'93
Rae, A.	'97
Ramsey, Agatha	'83
Ramsey, G. W.	'72
Randall, G. R.	'87
Rantschler, Luella	'02
Rapp, C. A.	'04
Rasmussen, F.	'05
Raybourne, Hattie	'73
Read, C. E.	'94
Read, Elizabeth	'98
Read, G. C.	'05
Read, R.	'99
Redmon, Edith	'97
Reed, Alice	'98
Reed, C. D.	'94
Reed, E. G.	'97
Reed, E. E.	'95
Reed, G. E.	'80
Reed, Gwendolen	'97
Reed, H.	'04
Reese, E. A.	'06
Reeve, Emily	'83
Reeve, Kitty	'82
Reinbott, C.	'05
Reinhart, M.	'05
Replogle, H.	'92
Replogle, J. A.	'92
Rettenmainer, F.	'99
Reuling, Edna	'04
Reuling, W. E.	'06
Rew, F. A.	'03
Rew, N. C.	'02
Reynolds, M. C.	'03
Reynolds, M. H.	'86
Rhinehart, C.	'99
Rhoades, F. W.	'99
Rhodenbaugh, E.	'97
Rice, Addie	'84
Rice, A. C.	'97
Rice, Ellen	'78
Rice, H. V.	'99
Rice, R. G.	'93
Rice, T. L.	'95
Rich, O. W.	'86
Rich, W. D.	'95
Richards, Fannie	'72
Richman, E. S.	'86
Richmond, A.	'95
Rickard, W. U.	'89
Ricker, F. H.	'05
Rieke, F. C.	'06
Riggs, M. J.	'83
Ritzman, E. G.	'03
Robbins, Ellen	'78
Robbins, W. K.	'78
Roberts, G. A.	'06
Roberts, G.	'99
Roberts, Minnie	'90
Robinson, Ella	'96
Robinson, L. B.	'77
Robinson, W. O.	'73
Rodgers, Kate	'98
Rogers, B. R.	'99
Roland, C. W.	'03
Rolfs, J. A.	'92
Rolfs, Mary	'93
Rolfe, M. F.	'97
Rolfs, P. H.	'89
Rommel, G. M.	'99
Roop, F. S.	'95
Roscoe, I. B.	'96
Rosenberger, M.	'03
Ross, E. L.	'04
Ross, Ida	'75
Rottler, C.	'99
Roundy, Nancy	'75
Roup, C. J.	'04
Rowat, F. T.	'06
Rowat, J. A.	'04
Rowe, Louise	'04
Rowe, O. W.	'98
Roy, F. V.	'05
Royce, O.	'03
Rubel, C. W.	'04
Rubel, W. G.	'06
Rudolph, M. E.	'75
Rueda, Grace	'05
Rummel, Rose	'96
Rundall, Ethel	'95
Rundall, W. G.	'93
Rush, H. S.	'05
Russell, Stella	'98
Rutherford, Marga't	'97
Rutledge, H. I.	'94
Rutledge, T. T.	'92
Ryan, Edith	'94
Ryan, W. L.	'94
Sabin, G. D.	'95
Sample, A. F.	'97
Sample, J. C.	'95
Sampson, H. O.	'03
Sanborn, Nora	'94
Sanborn, R. S.	'95
Sanford, A. L.	'06
Savre, E. E.	'01
Sayers, E. E.	'85
Sayers, R. C.	'88
Sayles, Alice	'81
Sayles, H. W.	'99
Saylor, C. F.	'82
Saylor, J. F.	'92
Sayre, E. A.	'06
Schermerhorn, G. L.	'87
Schiele, A. F.	'06
Schleiter, F. H.	'95
Schlenker, G. T.	'94
Schmidt, H. T.	'97
Schoenleber, F. S.	'85
Schoenleber, J.	'89
Scholten, D. J.	'99
Scholty, W. C.	'02
Schooley, C. O.	'04
Schott, Sophia	'00
Schreckengast, I. B.	'85
Schreckengast, Lydia	'85
Schuetz, F. A.	'99
Schulte, G. H.	'90
Schulte, J. F.	'91
Schulte, J. I.	'95
Schwarting, W. W.	'05
Scofield, Emma	'87
Scott, A. B.	'05
Scott, A. H.	'04
Scott, C. R.	'05
Scott, H. N.	'76
Scott, I. J.	'00
Scott, R. S.	'05
Scott, S. C.	'83
Scott, W. M.	'79
Scott, W. U.	'89
Scranton, H. L.	'04
Scurr, J. H.	'98
Seaver, A. H.	'94
Seaver, Annie	'99
Secor, A. J.	'05
Shaff, J. O.	'04
Shanks, H.	'94
Shaul, W. H.	'90
Shaum, B. F.	'91
Shaw, A. B.	'76
Shaw, Winifred	'76
Shaw, Winifred	'06
Sheafe, E. A.	'88
Shealy, A. S.	'03
Shearer, Hannah	'85
Shearer, J. D.	'79
Shearer, T. W.	'81
Sheldon, B. J.	'88
Sheldon, D. D.	'04
Shelton, J. A.	'89
Shepperd, J. H.	'91
Shepherd, L.	'78
Sherman, E. A.	'96
Sherman, Ida	'75
Shipman, C. E.	'04
Shoemaker, W. R.	'89
Shreve, E. O.	'04
Silliman, Hala	'94
Simcoke, J. O.	'89
Simcoke, J. L.	'80
Simpson, C. D.	'04
Sirrine, E. F.	'94
Sirrine, F. A.	'91
Skinner, E. B.	'88
Skinner, H. G.	'02
Skinner, H. W.	'98
Slater, Bird	'04
Slater, Effie	'83
Slifer, A. C.	'02
Sloan, C. H.	'84
Sloan, Emma	'85
Sloan, R. J.	'92
Sloane, F. M.	'06
Smith, A. J.	'04
Smith, Bird	'04
Smith, C. A.	'72

NAME	CLASS
Smith, C. W.	'04
Smith, E. E.	'93
Smith, F. J.	'83
Smith, G. A.	'99
Smith, Ida	'74
Smith, I. R.	'05
Smith, I. W.	'72
Smith, Rose	'96
Smith, Sallie	'73
Smith, S. P.	'99
Smith, Sarah	'82
Smith, T. L.	'77
Smith, W. H.	'06
Smith, W. R.	'74
Smith, W. W.	'03
Snell, Mary	'74
Snelson, Dolly	'98
Snyder, Virgil	'89
Sokol, G. F.	'01
Sokol, J. M.	'95
Sorenson, N.	'91
Spaan, J. E.	'91
Spauding, E. P.	'04
Speers, C. H.	'96
Spence, Estella	'92
Spencer, C. L.	'87
Spencer, F. B.	'97
Spencer, H. C.	'72
Spencer, L. E.	'76
Spencer, N.	'88
Sperry, A. B.	'04
Spinney, L. B.	'92
Spring, C. F.	'99
Stalker, M.	'73
Stalker, Sallie	'73
Stanley, Fannie	'72
Stanton, E. M.	'98
Stanton, E. W.	'72
Stanton, Julia	'88
Stanton, Margaret	'02
Starkey, G. F.	'91
Starr, Evelyn	'93
Starr, Kate	'73
Starr, Nettie	'04
Starr, Nina	'03
Starr, P. W.	'89
Starzinger, O.	'03
Stearns, C. H.	'89
Steele, C. A.	'99
Steele, W. D.	'91
Steelsmith, G. L.	'96
Stephens, Lola	'05
Sterns, G. L.	'97
Stetzel, F. C.	'98
Stetzel, Pearl	'98
Stevens, Carol	'98
Stevens, Edith	'04
Stevens, Imogene	'05
Stevens, H. J.	'94
Stevens, J. L.	'72
Stevens, Kate	'90
Stevens, Olive	'97
Stevens, Rowena	'73
Stevens, S. W.	'02
Stevenson, W. H.	'05
Stewart, Alene	'93
Stewart, F. C.	'92
Stewart, G. H.	'06
Stewart, H. S.	'86
Stewart, J. E.	'02
Stewart, Mabelle	'98
Stewart, S.	'85
Stillman, W. L.	'99
Stillwell, J. D.	'05
Stimson, J. M.	'99
Stimson, J. T.	'90
Stinson, R. S.	'05
Stivers, E. D.	'01
Stockman, D. T.	'82
Stokes, A. C.	'92
Stouder, K. W.	'05
Stout, E. A.	'05
Stout, F. V.	'99
Stratton, F. L.	'77
Streeter, C. H.	'03
Streets, J. J.	'86
Stroud, J. S.	'89
Stuart, L.	'06
Stuhr, Adele	'99
Stuhr, W.	'02
Stuntz, A. W.	'94
Sturtz, G. W.	'87
Suit, F. T.	'00
Suksdorf, C. L.	'72
Summers, W. S.	'82
Sumner, W. D.	'04
Swenson, C. E.	'92
Swift, R. B.	'90
Swift, W. C.	'91
Taggart, Laura	'04
Tallman, C. E.	'88
Tanton, C. E.	'97
Tarr, S. W.	'98
Taylor, C. D.	'80
Taylor, F. F.	'05
Taylor, G. A.	'01
Taylor, H. C.	'96
Taylor, Margaret	'98
Tellier, H. O.	'04
Tener, W. A.	'05
Tenney, E. L.	'04
Terrill, Katharine	'04
Thomas, D. C.	'04
Thomas, E. B.	'05
Thomas, E. R.	'99
Thomas, Hannah	'97
Thomas, H. H.	'00
Thomas, W. A.	'80
Thomas, W. J.	'95
Thompson, G. W.	'84
Thompson, T. L.	'72
Thompson, Winifred	'05
Thompson, W. L.	'88
Thornburg, D. A.	'91
Thornburg, M. W.	'89
Thornton, L. C.	'75
Throcktmorton, C.	'06
Thurlimann, E.	'90
Thurlimann, L.	'90
Thurlimann, Rosalia	'89
Thurtle, R. P.	'87
Tiara, Helen	'93
Tibbets, C. L.	'04
Tilden, Elizabeth	'97
Tilden, L. C.	'88
Tilden, Minta	'97
Tilden, Ruth	'95
Tilden, W. C.	'98
Tillie, J.	'87
Tillotson, C. H.	'72
Tillson, H. L.	'03
Tinsley, G. W.	'06
Titus, H. E.	'98
Tooley, Alice	'99
Tooley, Mame	'99
Torres, G. S.	'04
Tourgee, C. H.	'04
Townsend, E. R.	'97
Tracy, P. B.	'06
Treman, A. J.	'05
Troeger, L. E.	'06
Trotter, W.	'92
Truman, W. D.	'05
Tufts, F. S.	'93
Tupper, Kate	'74
Turner, F.	'79
Tuttle, E. B.	'99
Twitchell, Ida	'78
Tyler, E. G.	'78
Ulibarri, R. B.	'04
Underhill, C. E.	'85
Usry, E. L.	'04
Vanatta, Maude	'03
Van Epps, C.	'94
Van Houten, C. C.	'92
Van Houten, Pearle	'04
Van Liew, J. E.	'99
Van Pelt, H. G.	'03
Van Velsor, Cora	'90
Vernon, J. J.	'97
Vanslyke, Eva	'74
Vincent, C.	'84
Vincent, J.	'80
Vincent, M.	'84
Wade, C. M.	'89
Waggoner, C. G	'04
Waggoner, H. I.	'03
Wagner, Cora	'86
Wake, A. R.	'94
Wakefield, Maude	'99
Walker, Annie	'98
Walker, E. R.	'00
Walker, R. A.	'99
Walker, Ruth	'06
Walker, R. H.	'95
Wall, J. C.	'03
Wallace, B. R.	'05
Wallace, D.	'01
Wallace, H. C.	'92
Walton, P. J.	'05
Warburton, C. W.	'02
Warden, M. I.	'05
Warden, W. M.	'98
Warwick, W. E.	'88
Waterhouse, G. S.	'92
Watkins, Ida	'97
Watson, E. B.	'05
Waugh, J. M.	'79

NAME	CLASS
Waugh, Nannie	'88
Way, L. C.	'06
Weakley, F. M.	'02
Weatherby, Florence	'88
Weatherby, Ione	'84
Weare, Mary	'90
Weaver, C.	'94
Weaver, R. G.	'96
Webber, Lorena	'98
Webster, E. H.	'01
Weise, A. M.	'06
Welch, Genevieve	'79
Welch, I. J.	'05
Welch, J. C.	'99
Welch, Leon	'03
Welch, W. B.	'80
Wellman, C. P.	'72
Wells, Kate	'83
Wells, J. M.	'72
Wells, M. E.	'83
Wells, W. D.	'83
Welsh, C.	'02
Wentch, Bell	'93
Wentch, Julia	'88
Wentch, W. W.	'96
West, Agatha	'83
West, H. H.	'92
Western, C. A.	'05
Weston, Ethelyn	'03
Wheeler, Nellie	'82
Wheeler, W. W.	'82
Whipple, Etta	'95
Whisler, B. A.	'03
Whitaker, J. M.	'75
Whitaker, J. R.	'74
Whitbeck, S.	'91
White, Blanche	'94
White, B. F.	'93
White, C. S.	'00
White, H. M.	'77
White, W. U.	'82
Whited, Alice	'79
Whited, W.	'79
Whiting, Millah	'75
Whitmore, A. P.	'98
Whitney, J. W.	'78
Wickham, J. Q.	'04
Wicks, W. J.	'84
Wier, W. H.	'84
Wilcox, Mabel	'95
Wiley, Erma	'05
Wilkinson, L. J.	'06
Williams, A.	'84
Williams, A. R.	'90
Williams, H. R.	'04
Williams, I. B.	'98
Williams, Loretta	'06
Williams, M. B.	'05
Williams, T. R.	'06
Williams, Vinnie	'93
Williamson, C. O.	'94
Wills, Nancy	'75
Wilson, Alda	'94
Wilson, Blanch	'97
Wilson, B. W.	'96
Wilson, C. A.	'95
Wilson, C.	'04
Wilson, E. R.	'95
Wilson, Elmina	'92
Wilson, E.	'94
Wilson, Fannie	'84
Wilson, Flora	'92
Wilson, G. W.	'78
Wilson, J. W.	'96
Wilson, J.	'97
Wilson, J. E.	'94
Wilson, J. W.	'87
Wilson, Lizzie	'75
Wilson, L. W.	'06
Wilson, Mary	'06
Wilson, Olive	'87
Wilson, P. M.	'91
Wilson, W. J.	'03
Wilson, W. M.	'00
Winnie, Lawrence	'97
Wood, A. L.	'02
Wood, Bell	'93
Wood, F.	'05
Woods, Mae	'91
Woodward, C. W.	'05
Woodard, D. C.	'05
Woodburn, O. P.	'95
Woodman, F. E.	'05
Woodman, Lois	'05
Woodruff, C. W.	'06
Woodruff, Theresa	'05
Woods, Belle	'78
Woodward, W. W.	'76
Wormley, G. W.	'84
Wortman, R.	'00
Wright, J. I.	'95
Wright, Mabelle	'98
Wright, W. H.	'88
Wyatt, Laura	'95
Wykoff, J. H.	'98
Wyman, A.	'06
Yates, S.	'88
Yates, S. Y.	'74
Yeisley, Mary	'06
Young, Mabel	'83
Young, J. T.	'94
Younie, Ethelyn	'03
Younie, Jeannette	'99
Zanke, G. J.	'05
Zimbleman, Mary	'89
Zinser, A. L.	'96
Zmunt, V.	'92
Zorn, G. W.	'96
Zorn, Nettie	'96

INDEX

Admission to the College........ 34
Admission to Academic Courses. 36
Admission of Special Students... 39
Advantage of entering in January 39
Agricultural Chemistry......... 240
Agricultural Course, Academic year in 57
Agricultural Courses, Electives in 100
Agricultural Courses, Freshman Year 58
Agriculture, Division of........ 55
Agricultural Engineering........
  Courses in.................. 65
  Department of.............. 65
  Post Graduate Work in...... 67
Agricultural Experiment Station. 105
Agricultural Experiment Station Staff 21
Agricultural Extension......... 109
Agricultural Extension Staff.... 25
Agricultural Journalism........ 98
Agricultural Scholarship........ 103
Agronomy.
  Courses in.................. 60
  Department of.............. 59
  Short Course in.............. 59
Algebra Examination Questions. 42
Alumni Association............ 52
Alumni Index.................. 391
Alumni List................... 354
Animal Husbandry.
  Course in.................. 84
  Department of.............. 78
  Four Year Course in......... 82
  Graduate Work in........... 88
Bacteriology 251
Botany 243
Buildings 30
Calendar 5
Ceramics and Clay Working.
  Courses in.................. 197
  Department of.............. 191
  Four Year Course in Ceramics 193
  Two Year Courses in Clay Working 196
Chemistry 232
Civics 290
Civil Engineering.
  Courses in.................. 159
  Department of.............. 149
  Four Year Course in........ 155
Classification and Standings.... 41
Clay, Robinson & Co. Fellowship Prize 81
Commercial Judging and Grading of Grains.................. 64
Credits for Practical Work.... 103
Cummins Rifles............... 303
Dairying.
  Courses in.................. 74
  Department of.............. 71
  Four Year Course in........ 72
  One Year Course in.......... 77
  Short Course in............ 72
Debating Contests............. 300
Debating League.............. 53
Degrees.
  Bachelors 28
  Doctors 114
  Masters 48
Division of Agriculture......... 55
Division of Engineering........ 127
Division of Science............ 209
Division of Veterinary Medicine. 111
Domestic Economy, Department of 262
Domestic Science, Course in.... 217
Economic Science.............. 261
Electrical Engineering.
  Courses in.................. 176
  Department of.............. 168
  Four Year Course in......... 171
Engineering, Courses in........ 133
Engineering, Division of....... 127
Engineering Experiment Station. 199
Engineering Experiment Station Staff 23
English, Course in............ 273
English Examination Questions. 44
Entrance 40
  Advantages of in January.... 39
Examination Questions......... 42
Expenses 40
Faculty 12
Farm Crops.
  Courses in.................. 62
  Department of.............. 62
  Graduate Work in........... 64
Fees and Expenses............ 40
Forestry, Courses in........... 95
General and Domestic Science Course 214
Geology 258
Good Roads School............ 206
Government 47
Graduates, summary of......... 389
History, Courses in........... 288
History, Examination Questions. 45
Honor Students............... 300
Horticulture and Forestry.
  Department of.............. 89
  Four Year Course in........ 91
  Graduate Work in.......... 96
  Short Course in............. 90

INDEX—Continued

Horticulture, Courses in........ 93
Hospital 50
Iowa Highway Commission..... 205
Iowa Highway Commission Staff 24
Library 51
  Instruction in................ 294
Lists of Students.............. 304
Literary Societies.............. 53
Literary Contests, Honors in.... 300
Literature, Department of...... 271
Literature, Courses in.......... 275
Location 30
Manual Labor.................. 47
Margaret Hall.................. 31
Master's Degree................ 48
Mathematics, Department of.... 224
Mechanical Engineering,
  Course in.................... 144
  Department of............... 134
  Four Year Course in......... 140
Military Science and Tactics.... 293
Mining Engineering.
  Courses in.................... 187
  Department of............... 179
  Four Year Course in......... 183
  Two Year Course in.......... 186
Modern Languages............. 282
Music, Department of.......... 295
Musical Organization........... 54
Officers of Administration...... 9
Officers of Instruction.......... 12
Oratorical Association.......... 54
Organization and History....... 26
Physical Culture................ 281
Physics, Courses in............ 174
Post Graduate Courses......... 48
Post Graduate Students........ 304
Poultry Husbandry............. 87
Professional Degrees in Engineering 39
Psychology 271
Publications.
  College 53
  Student 53
Public Speaking, Department of 277
Religious Life of the College.... 52
Rhetoric 271
Science and Agriculture, Course in 96
Science.
  Course in.................... 211
  Division of.................. 209
  Electives in................. 220
Scope 28
Soils.
  Courses in.................. 68
  Department of.............. 67
  Graduate Work in........... 70
Special Courses in Agriculture.. 103
Student Enrollment, Summary of 353
Thesis 48
Trustees, Board of............ 7
Tuition 40
Veterinary Medicine.
  Admission to................ 113
  Courses in.................. 118
  Division of.................. 111
  Examination and Degree...... 114
  Four Year Course in......... 115
Y. M. C. A. and Y. W. C. A. Associations 52
Zoology, Department of........ 253

UNIVERSITY OF ILLINOIS-URBANA

3 0112 111987217